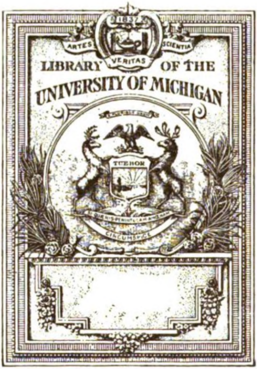
Plant Inventory -

United States. Division of Botany, United States. Dept. of Agriculture. Section of Seed and Plant Introduction, United States. Dept. of Agriculture, United States. ...


1837
ARTES VERITAS SCIENTIA
LIBRARY OF THE
UNIVERSITY OF MICHIGAN
TUEBOR

THE GIFT OF
The United States Gov.

SB
19.
.F7

UNIV. OF MICHIGAN,
APR 22 1914

Issued February 13, 1914.

U. S. DEPARTMENT OF AGRICULTURE.
BUREAU OF PLANT INDUSTRY.
WILLIAM A. TAYLOR, *Chief of Bureau.*

INVENTORY OF SEEDS AND PLANTS IMPORTED

BY THE

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION
DURING THE PERIOD FROM APRIL 1
TO JUNE 30, 1912.

(No. 31; Nos. 33279 to 34092.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1914.

MU

Issued February 13, 1914.

U. S. DEPARTMENT OF AGRICULTURE.
BUREAU OF PLANT INDUSTRY. Office of fo
WILLIAM A. TAYLOR, *Chief of Bureau.* plant introduct

INVENTORY
OF
SEEDS AND PLANTS IMPORTED
BY THE
OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM APRIL 1 TO JUNE 30, 1912.

(No. 31; Nos. 33279 to 34092.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1914.

BUREAU OF PLANT INDUSTRY.

Chief of Bureau, WILLIAM A. TAYLOR.
Assistant Chief of Bureau, L. C. CORBETT.
Editor, J. E. ROCKWELL.
Chief Clerk, JAMES E. JONES.

FOREIGN SEED AND PLANT INTRODUCTION.

SCIENTIFIC STAFF.

David Fairchild, *Agricultural Explorer in Charge.*

P. H. Dorsett, *Plant Introducer, in Charge of Plant Introduction Field Stations.*

Peter Bisset, *Plant Introducer, in Charge of Foreign Plant Distribution.*

Frank N. Meyer and F. W. Popenoe, *Agricultural Explorers.*

George W. Oliver, *Plant Breeder and Propagator.*

H. C. Skeels and R. A. Young, *Scientific Assistants.*

Stephen C. Stuntz, *Botanical Assistant.*

Robert L. Beagles, *Assistant Farm Superintendent, in Charge of Plant Introduction Field Station, Chico, Cal.*

Edward Simmonds, *Gardener and Field Station Superintendent, in Charge of Subtropical Plant Introduction Field Station, Miami, Fla.*

John M. Rankin, *Assistant Farm Superintendent, in Charge of Yarrow Plant Introduction Field Station, Rockville, Md.*

W. H. F. Gomme, *Assistant Farm Superintendent, in Charge of Plant Introduction Field Station, Brooksville, Fla.*

Edward Goucher and H. Klopfer, *Plant Propagators.*

M. E. Batchelor, W. R. Lucas, J. E. Morrow, and C. H. Steffani, *Gardeners.*

J. H. Allison, *Expert Propagator.*

Collaborators: Aaron Aaronsohn, *Director, Jewish Agricultural Experiment Station, Haifa, Palestine;* Dr. Gustav Eisen, *California Academy of Sciences, San Francisco, Cal.;* E. C. Green, *Coroata, Maranhao, Brazil;* N. E. Hansen, *South Dakota Experiment Station, Brookings, S. Dak.;* A. C. Hartless, *Seharunpur Botanic Gardens, Seharunpur, India;* Barbour Lathrop, *Chicago, Ill.;* William S. Lyon, *Gardens of Nagtajan, Manila, P. I.;* William H. Raynes, *Tallahassee, Fla.;* Joseph F. Rock, *Honolulu, Hawaii;* Miss Eliza R. Scidmore, *Seoul, Chosen (Korea);* Dr. L. Trabut, *Director, Service Botanique, Algiers, Algeria;* E. H. Wilson, *Arnold Arboretum, Jamaica Plain, Mass.*

INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM APRIL 1 TO JUNE 30, 1912 (NO. 31; NOS. 33279 TO 34092).

INTRODUCTORY STATEMENT

This is the first inventory of a new series, and the occasion furnishes an opportunity to review briefly the history of these inventories.

The first of the thirty inventories which have been published was designed by Mr. O. F. Cook, who saw the need for it during the time in which he had charge of the Section of Seed and Plant Introduction in 1899. The correctness of his foresight has been amply proved. The series of inventories has developed into a work of great value in its bearing on the rapidly developing agriculture of this country. Nowhere else, so far as known, is there an authentic record of the introduction into a country of 30,000 plant importations from various parts of the world.

The early inventories contained scarcely more than a bare record of the place of collection, the date, the name of the plant, and the collector, but this was largely due to the fact that the early introductions sent in were accompanied by very brief notes. With the arrival of the material from the Lathrop-Fairchild expedition, of Mr. W. T. Swingle's collections from the Mediterranean region, and of Mr. M. A. Carleton's material from Russia, the inventory first began to take on importance as a work on economic botany, inasmuch as the original observations of the collectors, who were termed "agricultural explorers" at Mr. Cook's suggestion, were printed in full. It is the observations fresh from the field which form one of the most valuable features of this publication.

Until 1908 the inventories were published at irregular intervals and were extremely variable in size, but since that year they have been issued quarterly, each number covering the introductions of three months. The inventories prior to No. 14, published in 1908, recorded the names of the plants or seeds received in the form in which they were given by the explorer or correspondent, but with the development in 1908 of facilities for the identification of the seeds sent in, through cooperation with the Office of Taxonomic and Range Investigations, an attempt was made to correct the nomenclature of the imported seeds and plants so far as was possible from the fragmentary material often sent in. It was not then and is not now always possible to identify a new introduction without first growing it, and it is as impracticable to postpone the publication of its importation for months or years, awaiting its flowering and fruiting, as it is to get some of our correspondents to prepare good botanical specimens and send these in with the seeds and plants. Corrections of the preliminary identifications must be made later.

To Mr. H. C. Skeels was intrusted the task of identifying the seeds and to Mr. W. F. Wight the plants, and arrangements were made by which this was done under the general supervision of Mr. Frederick V. Coville, botanist in charge of the Office of Taxonomic and Range Investigations. To nothing, perhaps, more than to the faithful care of Miss Mary A. Austin is due the accuracy and completeness of these quarterly inventories, and her resignation from the service, which occurred at the completion of this inventory, has been a matter of keen regret to all who have been working with her on the records of the office.

Owing to the delays incident to the publication of such a technical bulletin as this inventory, it has been found necessary to issue twice a month what might be termed advance sheets of information, being a bulletin called "Plant Immigrants," announcing promptly the arrival of new plants and soliciting applications for them by reputable experimenters at the State experiment stations and elsewhere. The quarterly publication of the inventories makes it possible to have on the shelves of the experimenter the data regarding his new plants at the time he is working with them, since, with the exception of annuals, almost all species are first propagated in the various field stations of the Office of Foreign Seed and Plant Introduction and distributed the following season in the shape of plants.

It has been customary in these introductions to the printed inventories to single out some of the more interesting importations. The following importations listed in this inventory appear to the writer as worthy of special mention:

No. 33279, the Alger Navel orange, a variety originated by Dr. L. Trabut, of Algiers; No. 33281, a new sweet sorghum, apparently related to the Red Amber variety, from German East Africa; No. 33290, *Lathyrus mulkak,* from the mountain slopes of Bokhara, which Mr. Frank N. Meyer says is perennial and could be used for the creation of a perennial sweet pea; Nos. 33295 to 33301, seven varieties and species of Trigonella for trial in comparison with *T. foenum-graecum,* the fenugreek of Egypt and Tunis; Nos. 33303 to 33307, five species of Hedysarum for breeding purposes and trial in comparison with sulla, the great forage crop of Malta; No. 33308, *Spinacia tetrandra,* a wild spinach from central Asia, to assist in the creation of a variety resistant to hot weather; No. 33311, *Amygdalus bucharica,* a wild almond occurring in the hot, dry mountain regions of Russian Turkestan, to be used as a drought-resistant stock, as a nut tree, as an ornamental, and for hybridizing purposes; Nos. 33317 and 33645, *Larix sibirica,* a remarkably rapid-growing species for which only 10 weeks of summer are sufficient to ripen its wood, one of the tallest trees grown in St. Petersburg, and a very promising park and lumber tree for the Northwest, as it has proved hardy in central Canada; No. 33320, a species of Ammophila, from the sand dunes of northern Mongolia, a grass possessing good sand-binding qualities, the seeds of which are made into coarse bread; Nos. 33321 to 33335, species ot Opuntia, a remarkable collection of cacti, the gift of Mr. Robert Roland Gosselin, of Villafranca (Villefranche sur Mer), France, representing the famous collection of Weber, the cactus specialist; Nos. 33342 to 33345, four Indian species of Rubus from Utakamand, India; Nos. 33352 to 33354, three varieties of cotton from Siam which may have originated in that region; Nos. 33392 to 33403, a collection of grapes for table and wine-making purposes from Beirut, Syria; Nos. 33408 to 33417, a collection of castor bean varieties from British India; No. 33431, *Actinidia chinensis,* from Kuling, China, in the form of roots, from plants that bore large fruits and are therefore female; Nos. 33443, 33444, 33598, and 33599, Alysicarpus, four species of Indian legumes of probable value for grazing purposes, arranged for by Mr. C. V. Piper; No. 33445, *Chrysopogon montanus,* one of the most valued pasture grasses in India, also arranged for by Mr. Piper; No. 33447, *Iseilema laxum,* from lowlands on the plains of northern India, a grass which is both grazed and cut for hay there; Nos. 33448 to 33457, a remarkable collection of Bolivian varieties of Indian corn, including the giant-kerneled and very sweet-kerneled varieties, sent in by Minister Horace G. Knowles; Nos. 33467 and 33468, Venezuelan *Arracacia xanthorrhiza,* two varieties of what may prove a good summer vegetable in Florida; Nos. 33523 to 33539, *Vitis vinifera,* 17 varieties of Almeria table grapes; Nos. 33543 to 33550, a collection of ornamental trees and shrubs from Seharunpur, India, probably suited to the climate of Florida, secured at the request of Mr. Piper; Nos. 33551 to 33587, a collection of seeds of trees and shrubs from Lucknow, India, arranged for by Mr. Piper with Mr. H. J. Davies, of the Government Horticultural Gardens there, suitable particularly for trial in southern Florida; No. 33596, *Andropogon annulatus,* and No. 33597, *A. pertusus,* two excellent hay grasses from the Ganges Valley of British India, selected by Mr. Piper; Nos. 33601 to 33603, *Cenchrus biflorus,* a grass related to our sand bur but having grazing value, from Lucknow, Agra, and Lahore; No. 33608, *Indigofera linifolia,* one of the best pasture plants of the Ganges Valley; No. 33611, *Pennisetum ciliare*, the best native hay grass of the Ganges Valley, growing 2½ feet high; No. 33617, *Capriola dactylon*, apparently a more vigorous grower than the ordinary crab-grass, according to Mr. Piper, who saw it growing at Alighur, India; No. 33639, the *Assil* cotton, a new Egyptian variety secured by Mr. O. F. Cook from Alexandria; No. 33643, *Backhousia citriodora*, from Sunnybank, Queensland, which yields 4 per cent of citral, the valuable constituent of all lemon oils; Nos. 33657 to 33665, nine probably extremely hardy varieties and crosses of *Prunus fruticosa* with *P. avium*, *P. cerasus*, and *P. domestica*, presented by Mr. A. D. Voeikov, a plant breeder of central Russia; No. 33689, the *Bumulan* banana, a robust variety from Manila, which has attracted some attention in the West Indies; No. 33692, *Anthephora hermaphrodita*, a renowned grass in the dry region of the province of Ceara, Brazil, probably valuable for hay; No. 33736, a variety of red clover from Trent, Austria, called the *Giant* or *Spodone*, recently introduced from Italy, which yields 25 to 30 per cent more than ordinary clover, according to Prof. Bassi, of the provincial administration; No. 33749, okra, or gumbo, a variety originally from Egypt which is an early bearer, has thicker flesh and is more tender than other varieties, selected by Mr. E. A. McIlhenny, of Avery Island, La.; No. 33762, *Cocos yatay*, from Haedo, near Buenos Aires, Argentina, a frost-resistant palm with fruit that looks like a crab apple and tastes like a green pineapple; No. 33779, a variety of pigeon-pea from La Noria, Mazatlan, Mexico; No. 33793, *Rubus hawaiensis*, the akala fruit from Hawaii, probably the largest fruiting raspberry known, being over 1 inch in diameter, with a sharp, rather acid but pleasant flavor; Nos. 33800 to 33911, a very remarkable collection of Chilean seeds from Mr. José D. Husbands, of Limavida, Chile, of which the following are especially noteworthy—No. 33801, Fagelia, a remarkable yellow-flowered fragrant ornamental; Nos. 33802 to 33806, five varieties of Chilean yams; No. 33812, a species of large yellow-flowered senecio with flowers in bunches 2 feet long; Nos. 33819 to 33822, *Alstroemeria ligtu*, the linto of Chile, which is used for producing a very valuable arrowroot for infants and sick people; No. 33833, *Acacia cavenia*, a tree for live fences in arid regions, which is considered by Mr. Husbands to be one of the most valuable trees for cultivation on a Chilean farm, and the young foliage of which is much relished by sheep; No. 33869, the Chilean muermo, a magnificent evergreen tree which whitens the forest with its blossoms; No. 33872, the maravilla, a golden-yellow flowering shrub; Nos. 33888 to 33896, nine varieties of the little-known fruiting shrub called the arrayan, the fruits of which are said to be delicious; No. 33905, the murta, considered by Mr. Husbands to be the best wild fruit in Chile; Nos. 33907 to 33909, three varieties of an undetermined species of myrtus with edible fruits—Nos. 33913 to 34038, a collection from Señor Carlos Thays, of the Botanic Garden of Buenos Aires, of seeds of ornamental trees and shrubs from Brazil and Argentina, some of which should be of great interest to southern park superintendents, for example, No. 33965, the curious canbanambi, whose fruits have an odor which causes one to sneeze; No. 33970, the chañar, a favorite fruit of the Argentinos; No. 33997, a remarkable bulb of the iris family, from a dozen bulbs of which over a thousand apricot-yellow blooms were produced. From other correspondents we find No. 34045, a remarkable yellow-fruited Rubus which Dr. Proschowsky reports has climbed nearly to the top of his olive trees at Nice and bears an abundance of good fruit; Nos. 34046 to 34049, four species of drought-resistant fodder grasses from New South Wales; No. 34050, seeds of the delicious ilama from Tehuantepec, a fruit resembling the cherimoya, but larger and said to be of better flavor; No. 34051, a new species of bombax from the Philippines, which will probably grow in southern Florida and is of value in furnishing what appears to be quite as good a fiber as the best Java kapok; Nos. 34056 to 34062, a collection of muskmelon seeds from the Dominican Republic which will interest growers in subtropical regions; No. 34063, the Karagatch elm of the Trans-caspian territory, a more rapid grower and producing harder and better wood than the American elm, which has proved hardy at Fallon, Nev., and is one of the most beautiful avenue trees known; No. 34071, *Dammara alba*, the remarkable broad-leaved conifer of Java; No. 34078, *Talauma mutabilis*, from the island of Java, a large yellow-flowered tree related to the magnolia, introduced for breeding experiments; and No. 34092, from Senegal, West Africa, presented by the director of the Colonial Garden at Nogent sur Marne, France, a perennial rice which produces rhizomes and will probably grow in saline soils, and since the natives consider it so much better than their imported rices that they will exchange only one calabash of it for three of the imported kind it is certainly worthy of special consideration.

As heretofore, the manuscript for this inventory has been prepared by Miss Mary A. Austin, the botanical determinations have been made and the notes on geographic distribution compiled by Mr. H. C. Skeels, and the notes on nomenclature have been prepared under the supervision of the Committee on Scientific Orthography of this Bureau by Mr. S. C. Stuntz, who has also had general supervision of this inventory, as of all the publications of the Office of Foreign Seed and Plant Introduction.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., February 8, 1913.

INVENTORY.

33279. CITRUS AURANTIUM SINENSIS L. **Orange.**

From Algiers, Algeria. Presented by Dr. L. Trabut. Received April 1, 1912.

"*Alger Navel.* Fruit large, flattened, double, late. Flesh fine, juicy, with pleasant odor. Very vigorous tree. Obtained from seeds at the botanic station. (*Trabut.*)

Seeds.

33281. HOLCUS SORGHUM L. **Sorghum.**

(*Sorghum vulgare* Pers.)

From Mpwapwa, German East Africa. Presented by Mr. W. Sperling, Kaiserliche Bezirksamtmann. Received April 4, 1912.

This plant, which has been listed in previous numbers of these inventories as *Andropogon sorghum* (L.) Brot., and is listed in the Index Kewensis as *Sorghum vulgare* Pers., has been identified as the type of the genus Holcus by Mr. A. S. Hitchcock, who says (Grasses of Cuba, Contributions from U. S. National Herbarium, vol. 12, pt. 6, p. 195, 1909): "*Holcus sorghum* L. must be considered the type of the genus Holcus, since it is the most important economic species of the genus, and, further, since, in the fifth edition of his Genera Plantarum, Linnæus refers to the genus Sorgum Mich [eli] as a synonym of Holcus." It is therefore necessary to use this original Linnæan name for the sorghum.

"This seed is very interesting because it is apparently different from anything that I have had previously from this region. It is apparently a sorgo, or sweet sorghum. Its relationship can be ascertained only by growing it, but apparently it is related to the *Red Amber.*" (*Carleton R. Ball.*)

33282 to 33284. ZEA MAYS L. **Corn.**

From Georgetown, Demerara, British Guiana. Presented by Mr. F. A. Stockdale, Assistant Director and Government Botanist, Botanic Garden, Science and Agriculture Department. Received April 3, 1912.

Seeds of the following:

33282. *Creole.* No. 1.

33283. *Creole.* No. 2.

33284. *Creole.* No. 3.

"I can not tell whether or not these are true to type, as they were obtained from a farmer here and have not been grown at our experimental stations." (*Stockdale.*)

See No. 32490 for previous introduction.

33285 to 33320.

From Russia. Received through Mr. Frank N. Meyer, agricultural explorer, for this Department. Received April 2, 1912.

Seeds of the following:

33285. TRITICUM DURUM Desf. **Wheat.**

From St. Petersburg, Russia.

"(No. 1746a, Feb. 11, 1912.) A variety of hard summer wheat, coming from the hot and dry Syr-Darya District, Russian Turkestan. Said to be grown

33285 to 33320—Continued.

without irrigation, and to give a good harvest. Locally called *Kubanka*, under which name several distinct varieties pass.

"Obtained at the seed exhibition held in St. Petersburg during the early part of February, 1912." (*Meyer.*)

33286. TRITICUM AESTIVUM L. **Wheat.**

(*Triticum vulgare* Vill.)

From St. Petersburg, Russia.

"(No. 1747a, Feb. 11, 1912.) A medium-soft summer wheat of fine quality; comes from the hot and dry Syr-Darya District, Russian Turkestan, and is said to grow without irrigation. Called *Syr-Darya*. Obtained like the preceding number." (*Meyer.*)

33287. TRITICUM AESTIVUM L. **Wheat.**

(*Triticum vulgare* Vill.)

From St. Petersburg, Russia.

"(No. 1748a, Feb. 11, 1912.) A very white, soft summer wheat; comes from the hot and dry Syr-Darya District, Russian Turkestan; said to be grown under slight irrigation. Locally called *Ak-Boogdai*. Obtained like No. 1746a." (*Meyer.*)

33288. TRITICUM AESTIVUM L. **Wheat.**

(*Triticum vulgare* Vill.)

From St. Petersburg, Russia.

"(No. 1749a, Feb. 11, 1912.) A medium-soft summer wheat coming from the hot and dry Syr-Darya District, Russian Turkestan; said to be grown under irrigation. Called *Kubanka*. Seems to be a cross between *Triticum durum* and *T. vulgare*. Obtained like No. 1746a." (*Meyer.*)

33289. AVENA SATIVA L. **Oat.**

From St. Petersburg, Russia.

"(No. 1750a, Feb. 11, 1912.) A sample of a very white variety of oats coming from the mountainous Ferghana District, Russian Turkestan. Obtained like No. 1746a." (*Meyer.*)

(A slip was attached to these oats marked "Dollar oats.")

33290. LATHYRUS MULKAK Lipsky.

From St. Petersburg, Russia.

"(No. 1751a, Feb. 17, 1912.) A rare, perennial Lathyrus which occurs here and there on mountain slopes in southern Bokhara; has large reddish pink flowers which are quite fragrant. Of value as a factor in hybridization experiments in trying to create perennial sweet peas and as a possible forage plant for dry, hot regions. Obtained from the St. Petersburg Botanical Garden." (*Meyer.*)

33291. ONOBRYCHIS CAPUT-GALLI (L.) Lam.

From St. Petersburg, Russia.

"(No. 1752a, Feb. 17, 1912.) An annual legume which may be tested for its possible forage value. Obtained like the preceding number." (*Meyer.*)

Distribution.—The countries bordering on the Mediterranean from Spain eastward through Italy, Greece, and Asia Minor to Syria, and in northern Africa.

33285 to 33320—Continued.

33292. ONOBRYCHIS CRISTA-GALLI (L.) Lam. **Hérisson.**

From St. Petersburg, Russia.

"(No. 1753a, Feb. 17, 1912.) An annual legume which may be tested for its possible forage value. Obtained like No. 1751a." (*Meyer.*)

Distribution.—The countries at the eastern end of the Mediterranean from Greece through Asia Minor to Palestine, and in northern Egypt.

33293. ONOBRYCHIS SATIVA MONTANA (DC.) Koch. **Sainfoin.**
(*Onobrychis viciaefolia montana* Burn.)

From St. Petersburg, Russia.

"(No. 1754a, February 17, 1912.) An annual legume which may be tested for its possible forage value. Obtained like No. 1751a." (*Meyer.*)

Distribution.—Southern Europe and western Asia, extending from Spain eastward through Italy, Greece, and the Caucasus region to Asia Minor.

33294. ONOBRYCHIS LACONICA Orph.

From St. Petersburg, Russia.

"(No. 1755a, February 17, 1912.) An annual legume, occurring throughout Russian Turkestan. Apparently possesses value for forage purposes. Obtained like No. 1751a." (*Meyer.*)

Distribution.—The subalpine slopes of the mountains in Greece.

33295. TRIGONELLA CAERULEA (L.) Ser.

From St. Petersburg, Russia.

"(No. 1756a, February 17, 1912.) An annual legume occurring in the Caucasus. May be tested for its possible forage value. Obtained like No. 1751a." (*Meyer.*)

33296. TRIGONELLA CAERULEA (L.) Ser.

From St. Petersburg, Russia.

"(No. 1757a, February 17, 1912.) Variety *connata.* An annual legume which may be tested for its possible forage value. Obtained like No. 1751a." (*Meyer.*)

33297. TRIGONELLA CAERULEA (L.) Ser.

From St. Petersburg, Russia.

"(No. 1758a, February 17, 1912.) Variety *monophylla.* An annual legume which may be tested for its possible forage value. Obtained like No. 1751a." (*Meyer.*)

33298. TRIGONELLA CRETICA Boiss.

From St. Petersburg, Russia.

"(No. 1759a, February 17, 1912.) An annual legume which may be tested for its possible forage value. Obtained like No. 1751a." (*Meyer.*)

33299. TRIGONELLA FOENUM-GRAECUM L. **Fenugreek.**

From St. Petersburg, Russia.

"(No. 1760a, February 17, 1912.) A well-known annual fodder plant. To be tested along with other species of Trigonella for comparison. Obtained like No. 1751a." (*Meyer.*)

33300. TRIGONELLA GLADIATA Steven.

From St. Petersburg, Russia.

"(No. 1761a, February 17, 1912.) An annual legume which may be tested for its possible forage value. Obtained like No. 1751a." (*Meyer.*)

33285 to 33320—Continued.

33301. TRIGONELLA POLYCERATA L.

From St. Petersburg, Russia.

"(No. 1762a, February 17, 1912.) Variety *dentata*. An annual legume which may be tested for its possible forage value. Obtained like No. 1751a." (*Meyer*.)

33302. MEDICAGO RADIATA L.

From St. Petersburg, Russia.

"(No. 1763a, February 17, 1912.) An annual legume which may be tested for its possible forage value. Obtained like No. 1751a." (*Meyer*.)

33303. HEDYSARUM ESCULENTUM Ledeb.

From St. Petersburg, Russia.

"(No. 1764a, February 17, 1912.) A perennial legume which may be tested for its possible forage value. Obtained like No. 1751a." (*Meyer*.)

Distribution.—Eastern Siberia, Manchuria, and Japan.

33304. HEDYSARUM FLAVESCENS Regel and Schmalh.

From St. Petersburg, Russia.

"(No. 1765a, February 17, 1912.) A perennial legume which may be tested for its possible forage value. Obtained like No. 1751a." (*Meyer*.)

Distribution.—On the slopes of the mountains in Turkestan at an elevation of 6,500 to 7,000 feet.

33305. HEDYSARUM MICROCALYX Baker.

From St. Petersburg, Russia.

"(No. 1766a, February 17, 1912.) A perennial legume which may be tested for its possible forage value. Obtained like No. 1751a." (*Meyer*.)

Distribution.—Temperate slopes of the Himalayas in the province of Kashmir, in northern India.

33306. HEDYSARUM HEDYSAROIDES (L.) Stuntz.

(*Astragalus hedysaroides* L., Species Plantarum, p. 756, 1753.)

Seeds of this species were received from St. Petersburg under the name *Hedysarum obscurum* L. This name was published in 1759 by Linnæus (Systema Naturæ, ed. 10, p. 1171) and the species is there based on *Astragalus hedysaroides* L. As the earliest specific name, *hedysaroides* should be adopted.

From St. Petersburg, Russia.

"(No. 1767a, February 17, 1912.) A perennial legume which may be tested for its possible forage value. Obtained like No. 1751a." (*Meyer*.)

33307. HEDYSARUM SONGARICUM Bongard.

From St. Petersburg, Russia.

"(No. 1768a, February 17, 1912.) A perennial legume which may be tested for its possible forage value. Obtained like No. 1751a." (*Meyer*.)

Distribution.—The valley of the Sungari River in northeastern Siberia.

33308. SPINACIA TETRANDRA Stev. **Spinach.**

From St. Petersburg, Russia.

"(No. 1769a, February 17, 1912.) A wild spinach occurring in central Asia. Possibly of value in hybridization and selection work, with the object in mind of creating strains of spinach more resistant to hot weather and less quickly shooting into seed than do present varieties. Obtained like 1751a." (*Meyer*.)

Distribution.—In salty clay soil from the Caucasus region of Armenia eastward through northern Persia to Turkestan and Afghanistan.

33285 to 33320—Continued.

33309. Asparagus schoberioides Kunth. **Asparagus.**

From St. Petersburg, Russia.

"(No. 1770a, February 17, 1912.) A wild asparagus possibly of value for breeding purposes. Obtained like No. 1751a." (*Meyer.*)

Distribution.—Dry, sandy places in the provinces of Shengking and Shantung in China, and in Chosen (Korea), and Japan.

33310. Lilium dauricum Ker-Gawler. **Lily.**

From St. Petersburg, Russia.

"(No. 1771a, February 17, 1912.) A lily from the Amur regions, which has bright, brick-red flowers. Though not of large dimensions, this plant seems a desirable acquisition to the hardy border. Obtained like No. 1751a." (*Meyer.*)

Distribution.—The slopes of the mountains in Dauria and eastward to Manchuria, the Amur region, the Sakhalin islands, and the island of Hokushu in Japan.

33311. Amygdalus bucharica Korsh. **Almond.**

From St. Petersburg, Russia.

"(No. 1772a, February 17, 1912.) A wild almond occurring in the hot and dry mountain regions of Russian Turkestan. May be experimented with for the following purposes: As a drought-resistant stock for almonds and peaches, as a possible drought-resistant nut tree, as an ornamental tree in desert regions, and as a factor in hybridizing. Obtained like No. 1751a." (*Meyer.*)

33312. Prunus spinosissima (Bunge) Franch.

From St. Petersburg, Russia.

"(No. 1773a, February 17, 1912.) A wild, shrubby almond found in stony débris in the hot and dry mountain regions of Russian Turkestan. Possibly of the same value as the preceding number, and in addition may prove of use as a hedge material in desert regions. Obtained like No. 1751a." (*Meyer.*)

Distribution.—The trans-Caspian district of southwestern Siberia and northwestern Persia, and eastward to Turkestan.

33313. Exochorda korolkowi Lavallée.

From St. Petersburg, Russia.

"(No. 1774a, February 17, 1912.) A shrub native to the mountains of Russian Turkestan, flowering with masses of white flowers. Of value possibly as an ornamental garden shrub in rather dry regions. Obtained like No. 1751a." (*Meyer.*)

33314. Colutea persica buhsei Boiss.

From St. Petersburg, Russia.

"(No. 1775a, February 17, 1912.) A shrub native to the dry mountain regions of Russian Turkestan. Obtained from the same source as No. 1751a." (*Meyer.*)

33315. Abelia corymbosa Regel and Schmalh.

From St. Petersburg, Russia.

"(No. 1776a, February 17, 1912.) A tall shrub growing here and there in the Alexander Mountains, eastern Russian Turkestan. Is esteemed for its hardwooded slender stems from which walking canes known by the name 'Staffs of Moses' are made, which are especially sought after by Mohammedan pilgrims. Obtained from the same source as No. 1751a." (*Meyer.*)

33285 to 33320—Continued.

33316. Acer turkestanicum Pax. **Maple.**

From St. Petersburg, Russia.

"(No. 1777a, February 17, 1912.) A maple occurring here and there in the mountains of Russian Turkestan. Of value as a small shade tree in dry and hot regions. Obtained like No. 1751a." (*Meyer.*)

33317. Larix sibirica Ledeb. **Larch.**

From St. Petersburg, Russia.

"(No. 1778a, February 17, 1912.) The little-known Siberian larch. This is an excellent lumber tree, requiring only a very short season to mature, 10 weeks of summer being apparently sufficient to complete the whole process of coming into leaf and shedding again. This tree possesses also great value as an ornamental park tree in cool, uncongenial climes, as in and around St. Petersburg, where it becomes one of the tallest of all trees. It can also be clipped into pyramids and made to serve in formal gardens or along walks. May be expected to thrive especially in southern Alaska and in the coolest sections of the United States. Obtained like No. 1751a." (*Meyer.*)

33318. Larix sibirica Ledeb. **Larch.**

From Estate Mitino, Torzhok, Tver Government, Russia.

"(No. 1779a, February 5, 1912.) Received from Mr. D. D. Romanoff, on whose estate, 'Mitino,' some remarkably fine specimens of this larch are found. For further remarks see preceding number." (*Meyer.*)

33319. Larix dahurica Turcs. **Larch.**

From Estate Mitino, Torzhok, Tver Government, Russia.

"(No. 1780a, Feb. 6, 1912.) A larch occurring in Manchuria, eastern Siberia, northern Chosen (Korea), etc., forming here and there large forests. Its lumber is of excellent quality, though apparently not ranked as high as that of *Larix sibirica*. It is also a fine ornamental tree, not growing as tall as *L. sibirica*, but is better able to withstand drought and heat. Can be clipped and pruned for use in formal gardens and seems naturally to branch out lower near the ground than *L. sibirica*. Obtained like No. 1751a." (*Meyer.*)

33320. Ammophila sp.

Seeds of this species were received under the name *Ammophila villosa*, but the place of publication of this name has not yet been found.

From St. Petersburg, Russia.

"(No. 1781a, Feb. 24, 1912.) A perennial tall grass found growing in sand dunes in northern Mongolia. Its seeds are collected by the Mongols and a coarse bread made from them. This grass seems to possess excellent sand-binding qualities and might be tested for this purpose in cold and dry sections of the United States. Obtained from Mr. J. W. Palibin, St. Petersburg Botanic Garden, who received these seeds from the neighborhood of Lake Ubsa, northwestern Mongolia." (*Meyer.*)

33321 to 33335. Opuntia spp. **Prickly pear.**

From Alpes Maritimes, France. Presented by Mr. Robert Roland Gosselin, Colline de la Paix par Villefranche sur Mer. Received April 4, 1912.

These are important chiefly as representatives from authentic original specimens transmitted by Dr. Weber to Mr. Robert Roland Gosselin. They will be valuable especially in enabling us better to understand the species described by Dr. Weber. Two of them may be of importance for forage, and several of them bear edible fruit.

33321 to 33335—Continued.

Cuttings of the following:

33321. Opuntia hyptiacantha Weber.

33322. Opuntia vulgaris balearica Weber.

33323. Opuntia myriacantha Weber.

33324. Opuntia pilifera Weber.

33325. Opuntia scheerii Weber.

33326. Opuntia gosseliniana Weber.

33327. Opuntia streptacantha Lem.

33328. Opuntia robusta larreyi Weber.

33329. Opuntia gymnocarpa Weber.

33330. Opuntia sp.

33331. Opuntia sp.

33332. Opuntia velutina Weber.

33333. Opuntia rastrera Weber.

33334. Opuntia camuessa Weber.

33335. Opuntia spinulifera Salm-Dyck.

33336. PAEONIA MLOKOSEWITSCHI Lomakin.

From Tiflis, Caucasus, Russia. Presented by Mr. A. Rolloff, Director, Botanic Garden. Received April 5, 1912.

See Nos. 27674 and 30523 for previous introductions.

Root.

33337 and 33338.

From Guatemala. Presented by Mrs. Lucie Potts, Livingston. Received April 5, 1912.

"The only use that is made of these grasses in this district is feed for cattle." (*Potts.*)

33337. Paspalum vaginatum Swartz.

"This grows in low, wet ground. It is covered with something like sirup, and the natives gather the seeds and crack them for their sweetness." (*Potts.*)

Distribution.—First described from Jamaica; generally distributed in the Tropics and in the United States along the coast from Florida to Texas.

33338. Scleria sp.

"Grows in low, flat lands." (*Potts.*)

33340. OPUNTIA CARDONA Weber.

From Alpes Maritimes, France. Presented by Mr. Robert Roland Gosselin, Colline de la Paix par Villefranche sur Mer. Received April 4, 1912.

Cutting.

33341. STRYCHNOS SPINOSA Lam. **Kafir orange.**

From Miami, Fla. Grown at the Subtropical Plant Introduction Field Station. Received March 20, 1912.

This fruit was picked on March 15. It was grown from S. P. I. No. 9611; see this number for description.

33342 to 33345. Rubus spp.

From Utakamand, India. Presented by Mr. F. H. Butcher, Curator, Government Botanic Gardens. Received April 8, 1912.

Seeds of the following:

33342. Rubus ellipticus Smith.

33343. Rubus moluccanus L.

33344. Rubus lasiocarpus Smith. **Raspberry.**

33345. Rubus racemosus Roxb.

Distribution.—A shrubby Rubus with large red flowers, found on the Nilgiri and Pulney Mountains in India.

33346. (Undetermined.) **Palm.**

From Boca Tres Amigos, Costa Rica. Presented by Mr. W. W. Gould. Received April 8, 1912.

"A palm known locally as *Maquenge.* It sends up a tall shaft with rather few leaves at the top, which at a distance bear some resemblance to a windmill. The shell of the mature trunk is about 2 inches thick and the wood is very hard and jet black. When polished, it makes a very excellent wood for plane stocks. It is especially valuable for joiner planes. It slips better than steel, is nearly as heavy, and takes on a very glossy polish. The only objection to it is that it splits very easily.

"It is used locally to make inclosures for native houses. The body of the trunk is split into strips about 4 inches wide, the fibrous pulp is stripped away from the inner surface, and the strips are placed vertically side by side to keep out wind and rain.

"The nuts, I think, could be used as a substitute for the Yankee's wooden nutmegs." (*Gould.*)

33347. Roscheria melanochaetes Wendl. **Palm.**

From Port Louis, Mauritius. Presented by Mr. G. Regnard. Received April 8, 1912.

"A palm 15 to 25 feet high with many aerial roots and a stem 2 to 3 inches in diameter with a ring of young spines when young below each leaf scar. Very ornamental and becoming scarce." (*Regnard.*)

Distribution.—In shaded forests at an elevation of 1,000 feet in the Seychelles.

33348. Leucaena glauca (L.) Benth.

From Port Louis, Mauritius. Presented by Mr. G. Regnard. Received April 8, 1912.

"A very interesting shrub common in Mauritius, leaves and seeds used as fodder for cattle, the seeds being boiled and crushed for that purpose." (*Regnard.*)

33349. Mentha piperita L. **Peppermint.**

From Japan. Purchased from the Yokohama Nursery Co. Received April 6, 1912.

Procured for the experiments being carried on by the Office of Drug-Plant, Poisonous-Plant, and Physiological Investigations.

33350. Dioscorea sp. **Yam.**

From Guatemala. Presented by Mrs. Lucie Potts, Livingston. Received April 5, 1912.

"This is called the 'potato of the air' (papa del aigre). The natives say it was the original potato. It grows on a vine, is produced above ground, and when boiled tastes very much like a potato." (*Potts.*)

33351. CAPSICUM ANNUUM L. **Red pepper.**

From Barcelona, Spain. Presented by Mr. Henry H. Morgan, American consul, through Dr. H. W. Wiley, Chief, Bureau of Chemistry, U. S. Department of Agriculture. Received February, 1912. Numbered April 8, 1912.

33352 to 33354. GOSSYPIUM spp. **Cotton.**

From Bangkok, Siam. Presented by Mr. Carl C. Hansen, American vice and deputy consul general in charge, who procured them from the Ministry of Agriculture, Siam. Received April 9, 1912.

Seeds of the following:

33352. GOSSYPIUM sp.

Chantaburi.

33353. GOSSYPIUM HIRSUTUM L.

Krung Kao or *Kroong Kow.*

33354. GOSSYPIUM NANKING Meyen.

Nakon Sritamaraj or *Sridhamaraj.*

33355 to 33375.

From St. Petersburg, Russia. Presented by Dr. A. Fischer von Waldheim, Director, Imperial Botanical Gardens. Received April 3, 1912.

Seeds of the following:

33355. ACER GINNALA SEMENOVII (Reg. and Herd.) Pax. **Maple.**

33356. ACER GINNALA SEMENOVII (Reg. and Herd.) Pax. **Maple.**

Distribution.—A small-leaved shrub, found on the slopes of the Alatau Mountains at an elevation of 3,000 to 4,000 feet in southern Siberia and in Turkestan.

33357. AMMODENDRON ARGENTEUM (Sievers) Kuntze.

(*Ammodendron sieversii* Fisch.)

Distribution.—On the salty desert plains in the Sungarian region of southern Siberia.

33358. CLEMATIS ORIENTALIS L. **Clematis.**

See No. 30243 for previous introduction.

33359. CORNUS KOENIGI Schneider.

Distribution.—A shrub found in the province of Batum in the Transcaucasian region of southeastern Russia.

33360. IRIS DREPANOPHYLLA Aitch. and Baker. **Iris.**

Distribution.—A yellow-flowered iris found in the northern part of Afghanistan.

33361. MECONOPSIS CAMBRICA Viguier.

See Nos. 33011, 33081, and 33082 for previous introductions.

33362. MECONOPSIS PANICULATA (Don) Prain.

See No. 33048 for previous introduction.

33363. MECONOPSIS RACEMOSA Maxim.

See No. 33013 for previous introduction.

33364. MEDICAGO HISPIDA ACULEATA Urban.

Distribution.—Persia and Arabia and eastward to western India; also in Egypt, Nubia, and South Africa.

33355 to 33375—Continued.

33365. Melilotus elegans Salzmann.

Distribution.—The countries bordering on the Mediterranean from Spain and Algeria to Palestine, and Abyssinia.

See No. 14854 for previous introduction.

33366. Melilotus messanensis (L.) All.

See Nos. 25213, 27471, and 27608 for previous introductions.

33367. Prunus prostrata Labill.

See Nos. 28945 and 30564 for previous introductions.

33368. Ribes dikuscha Fisch. **Currant.**

Variety *appendiculata*.

33369. Ribes procumbens Pallas. **Currant.**

See No. 32762 for previous introduction.

33370. Rosa xanthina Lindl. **Rose.**

33371. Rosa sp. **Rose.**

33372. Rosa sp. (1). **Rose.**

33373. Rosa sp. (2). **Rose.**

33374. Sophora alopecuroides L.

Distribution.—A low shrub growing on the temperate slopes of the mountains of southwestern Asia, extending from Asia Minor eastward through Turkestan and Afghanistan to western Tibet, where it is found at an altitude of 10,000 to 12,000 feet.

33375. Tilia rubra begonifolia (Stev.) Schneider.

See No. 31070 for previous introduction.

33376 to 33378. Vitis vinifera L. **Grape.**

From Almeria, Spain. Procured by Mr. James Murison, acting consular agent, at the request of Mr. Walter T. Swingle. Received April 10, 1912.

Cuttings of the following; names as given by Mr. Murison:

33376. "*Uva de Embarque*" (white grape).

33377. "*Uva de Casta*" (Molinera variety).

33378. "*Uva de Casta*" (Rosada variety).

33391. Citrus nobilis Lour. **Orange.**

From Hangchow, China. Presented by Rev. J. H. Judson, Hangchow College. Received April 12, 1912.

"Seed of the large, loose-skinned orange; very sweet." (*Judson.*)

33392 to 33403. Vitis vinifera L. **Grape.**

From Syria. Procured by Mr. Alfred Ely Day, Syrian Protestant College, Beirut, Syria. Received April 14, 1912.

Cuttings of the following; quoted notes by Mr. Day:

33392 to 33398. From Zahleh, 3,500 feet, east slope of Mount Lebanon, near plain of Coele-Syria.

33392. "*Tifafihi ahmar* (meaning 'like red apples'). A large, red grape of specially fine quality."

33393. "*Shakaifi*. A large, white grape of fine quality."

33392 to 33403—Continued.

33394. "*Suri.* A long, white grape; large clusters."

33395. "*Ubeidi.* A common variety used for making *arak* (spirits). About the same as *Miksâsi* from Bhamdun (S. P. I. No. 33115)."

33396. "*Khudud-ul-Banat* ('maidens' cheeks'). A pretty grape with a pinkish tinge."

33397. "*Zeini.* Like those of the same name from Bhamdun (S. P. I. No. 33117)."

33398. "*Mukhkh-ul-Baghl* (mule's head). A firm, red grape."

33399 to 33403. From Bludan, Anti-Lebanon, 5,000 to 5,500 feet altitude.

33399. "*Âsmi.* See same variety (S. P. I. No. 33114) from Bhamdun for note regarding this."

33400. "*Zeini.* See lot from Bhamdun (S. P. I. No. 33117)."

33401. "*Jubeili.* Large, round grape with very firm pulp, mottled red and greenish white."

33402. "*Kâsûfi-inti.* Same as variety by this name (S. P. I. No. 33118) sent from Bhamdun."

33403. "*Ubeidi.* Much the same as *Miksâsi* from Bhamdun (S. P. I. No. 33115)."

"These cuttings have each a short piece of an old branch with a longer piece of a new one. The custom here is to bury the old and most of the new, leaving only a small part of the new branch projecting from the ground."

33404. LATHYRUS SATIVUS L.

From Werchnedneprowsky Experiment Field, Russia. Presented by Mr. Alexander Kol, Assistant Agricultural Commissioner for the Russian Government, St. Louis, Mo. Received April 12, 1912.

"This plant proved one of the most productive grain legumes and very drought resistant in my experiments at Werchnedneprowsky Experiment Field.

"It is an annual and matures about the same time as lentils, but is about twice higher. The habit half-standing bushes, so that harvesting is not too difficult. The plant is richly supplied with 2-seeded pods that mature all at once and do not shatter very much. It can be sown quite thickly in rows, which do not need to be farther apart than 1 foot. It appreciates cultivation, but can do without it. I cultivated once or twice with a garden hoe (one wheel). It yields with me (average for three years) 1,200 pounds of grain per acre. It requires early sowing, the same as grain cereals. The straw looks a little rough, but it is nice food for stock and amounts to one and one-half or twice the grain yield." (*Kol.*)

33405. CRYPTOSTEGIA GRANDIFLORA R. Brown.

From western Mexico. Secured by Dr. J. N. Rose, of the United States National Museum, from a Mr. Tays. Presented through Mr. G. N. Collins, Bureau of Plant Industry. Received April 5, 1912.

"Seed of an African rubber-producing vine. The plant produces a good quality of rubber, but, so far as I know, it has never been successfully cultivated. It might be of interest to have it tried in some of our tropical islands in comparison with other rubber-producing plants." (*Collins.*)

Distribution.—A climbing vine with large lavender flowers, supposed to be a native of Madagascar and cultivated in various parts of India and in Egypt.

33406 to 33422.

From India. Presented by Mr. John D. Shanahan, Spencer Kellogg & Sons, Buffalo, N. Y., who procured them from the Allahabad Exhibition, India, unless otherwise noted. Received April 2, 1912.

The following oil seeds; quoted notes by Mr. Shanahan:

33406. LINUM USITATISSIMUM L. **Linseed.**

"A white linseed from Government Experiment Farm, Central Provinces."

33407. PAPAVER SOMNIFERUM L. **Poppy.**

33408 to 33417. RICINUS COMMUNIS L. **Castor bean.**

"There is one feature about the castor bean which all the evidence the writer could collect seems to bear out, and that is that the smaller bean is very much more desirable for commercial use than the larger one, as it is generally given credit for producing a larger yield and better quality of oil. This, of course, is only in a general way. In India, where the greater part of the commercial castor is obtained, the product grown in the territory surrounding Cawnpore is usually very large, and in commercial contracts this bean is barred on account of its large size and insignificant yield of oil.

"The castor-bean plant grows very large in some sections, reaching a height of from 25 to 30 feet, and in India it is mostly grown as a hedge plant, surrounding fields and dooryards. The manufacture of castor oil is growing in this country, and it seems to the writer that the production of beans in this country should be encouraged."

33408. "From Agra."

33409. "From Agra."

33410. "From Cawnpore."

33411. "From Ghazipur."

33412. "From Gondo."

33413. "From Lucknow."

33414. "From Manipur. (Bronze medal.)"

33415. "From Government Experiment Farm."

33416. "From Government Experiment Farm. (Big Kharif.)"

33417. "Sample of commercial seed secured at a native mill at Calcutta, March, 1911. Said to have come from Madras and to be the best quality for yield and quantity of oil used in Calcutta."

33418 to 33420. SESAMUM ORIENTALE L. **Sesame.**
(*Sesamum indicum* L.)

33418. "From Government Experiment Farm, Central Provinces." Brown seeded.

33419. White seeded.

33420. "From Government Experiment Farm, Native Provinces. (Native Til.)" Yellowish seeded.

33421. BRASSICA sp. **Mustard.**

"(Sarson.)"

33422. GUIZOTIA ABYSSINICA (L.) Cass. **Niger.**

"Niger seed from Cawnpore."

33423. TRITICUM AESTIVUM L. **Wheat.**

(*Triticum vulgare* Vill.)

From Tashkend, Russian Turkestan. Presented by Dr. Richard Schroeder, Director, Chief Agricultural Experimental Station. Received April 10, 1912.

"Our best Turkestan wheat, *Ssarymaguis;* that is, 'yellow grain.' This variety belongs to the species *Triticum vulgare*, but under dry conditions gives hard kernels. It is a spring wheat, but in Turkestan it is often sown late in the fall and sprouts in the beginning or at the end of the winter. We get the bulk of our annual rainfall in winter and spring, and as our summer and fall are too dry for the sprouting of the wheat in September or October (sometimes even in November), this fall sowing is equivalent to early spring sowing and is largely practiced with spring wheats. True fall wheat is sown with us mostly on irrigated lands.

"The sample I send is taken from a farmer, one of our neighbors (District of Tashkend)." (*Schroeder.*)

33424 to 33430.

From Mpwapwa, German East Africa. Presented by Mr. W. Sperling, Kaiserliche Bezirksamtmann. Received April 1 and 3, 1912.

Seeds of the following; quoted notes by Mr. Sperling:

33424 and **33425**. HOLCUS SORGHUM L. **Sorghum.**

(*Sorghum vulgare* Pers.)

33424. "*Lugugu.* White, open and erect panicle, good for flour; sugar in the stalk."

33425. "*Hembahemba.* White, very close panicle, very productive; cane very sweet. Used for flour."

"An examination of these shows that they apparently belong in or near the group comprising Hackel's variety *roxburghii*, which is a very common sorghum in central-eastern Africa. These differ from typical material in having shorter and blunter glumes and may prove to be widely distinct when we know the plant. The fact that they are saccharine is very interesting." (*Carleton R. Ball.*)

33426. ARACHIS HYPOGAEA L. **Peanut.**

"*Kalanga.*"

33427. ELEUSINE CORACANA (L.) Gaertn. **Ragi millet.**

"*Ulesi* or *Uwimbi.*"

33428. PENNISETUM GLAUCUM (L.) R. Brown. **Pearl millet.**

(*Panicum glaucum* L., Species Plantarum, p. 56, 1753.)

This species, which has been listed in previous numbers of the inventories as *Pennisetum americanum* (L.) Schum. and in Index Kewensis as *P. typhoideum* Rich., was first described by Linnæus (Species Plantarum, p. 56, 1753) as *Panicum glaucum*, based on a specimen from Ceylon. This specimen, which is still preserved in the British museum, has been identified by Trimen (Journal Linnean Society, vol. 24, p. 136, 1896) as the pearl millet, and it is therefore necessary to use the name *Pennisetum glaucum* for this plant.

"*Uwele.*"

33429 and **33430**. ZEA MAYS L. **Corn.**

33429. "*Kipegere.* Early ripening."

33430. "*Mkole.*"

33431. ACTINIDIA CHINENSIS Planch. **Yang-taw.**

From Kuling, China. Presented by Miss Mary M. Johnston, at the request of Rev. Hugh W. White, Yentcheng, Kiangsu, China. Received April 17, 1912.

"These roots are from plants that bore the largest specimens that I saw. The genuine yang-taw has no thorns, and the young smooth bark has whitish specks all through it." (*White.*)

33432 to 33436.

From Cambridge, England. Presented by Mr. R. Irwin Lynch, curator, Cambridge Botanic Garden. Received April 16, 1912.

Seed of each of the following:

33432. ACACIA LEUCOPHLOEA (Roxb.) Willd.

"A large, deciduous fast-growing tree. It prefers a low-lying situation, and in the Panjab [Punjab] its presence is regarded as significant of a rich soil. The bark affords a strong fiber said to be much valued for fishing nets. Ground to a powder it is sometimes eaten with *bajra* (*Pennisetum typhoideum*), especially in times of scarcity. But it has obtained a considerable reputation as an astringent used in alcoholic distillation. On this account it is often called *sharab-kikikar* (spirit Acacia)." (*Extract, Watt's Commercial Products of India, p. 15.*)

Distribution.—Throughout India and in the islands of the Malay Archipelago.

33433. EUCALYPTUS INCRASSATA Labill. **Mallee.**

Distribution.—A shrub or small tree found on the scrubby undulating plains north of the Sterling Range in West Australia.

33434. LAUROCERASUS LUSITANICA (L.) Roem. **Laurel cherry.**
(*Prunus lusitanica* L.)

Distribution.—A small evergreen tree found in Spain and Portugal and in the Canary Islands.

33435. LONICERA MAACKII (Rupr.) Herd. **Honeysuckle.**

See Nos. 22548 and 33053 for previous introductions.

33436. PRUNUS DOMESTICA INSITITIA (Jusl.) Schneider. **Plum.**

"This plum is a very prolific bearer. Fruits generally of medium size, used for preserves and compotes, especially in the Caucasus." (*Frank N. Meyer.*)

Distribution.—Throughout western and southern Europe, and in Asia Minor, Persia, and northern Africa.

33441. PISTACIA VERA L. **Pistache.**

From Bronte, Sicily. Presented by Mr. Charles Beek. Received April 22, 1912.

"Our Bronte pistachio nuts are reckoned the best in the world and always fetch the highest price. There are only one or two places in Sicily where they grow, and ours are always the best." (*Beek.*)

Cuttings.

33442. PERSEA LINGUE (R. and P.) Nees. **Lingue.**

From province of Valdivia, Chile. Procured by Mr. Jose D. Husbands, Limavida, via Molina. Received April 26, 1912.

See No. 24208 for description.

Seed.

33443 to 33447.

From Kirkee, Bombay, India. Presented by the Director, Ganeshkind Botanic Gardens, at the request of Prof. W. Burns, economic botanist, Poona; of whom they were requested by Mr. C. V. Piper, Bureau of Plant Industry. Received April 19, 1912.

Seeds of the following:

33443. ALYSICARPUS PUBESCENS Law.

"An erect annual legume, grows to a height of 3 to 5 feet and produces seed in abundance. The stems become somewhat woody, and its hairiness may make it less palatable than other species." (*C. V. Piper.*)

Distribution.—The plains of Konkan and Dekkan in India.

33444. ALYSICARPUS RUGOSUS (Willd.) DC.

"An erect species, growing to a height of 5 feet and producing an abundance of seed; stems somewhat woody. Stock graze on this plant greedily. As a hay plant it would probably prove rather coarse." (*C. V. Piper.*)

33445. CHRYSOPOGON MONTANUS Trinius.

"One of the most valued pasture grasses in India, especially in hilly lands." (*C. V. Piper.*)

33446. INDIGOFERA GLANDULOSA Wendl.

See Nos. 22732 and 23535 for previous introductions.

33447. ISEILEMA LAXUM Hackel.

"Common in the plains of northern India on low-lying land where the soil is good. In Bundelkhand this grass is abundant and largely used as fodder, and is prized above all other kinds. It is sweet scented when fresh. Mr. Coldstream says that it is very common in the Hissar bir swamps, in good land; and that where it will grow wheat will grow. It is both grazed and stacked and is much eaten by buffaloes." (*Duthie's Fodder Grasses of Northern India, p. 44.*)

Distribution.—The upper part of the valley of the Ganges and the plains of the Dekkan in India; also in Ceylon and Mauritius.

33448 to 33457. ZEA MAYS L. Corn.

From La Paz, Bolivia. Presented by Hon. Horace G. Knowles, American minister. Received April 20, 1912.

Seeds of the following, quoted notes by Mr. Knowles:

33448. "*Cuzco.* The grains of this corn are twice the size of the largest I ever saw in the United States, and its snow-white color and fine flavor make it superior to our American white corn. Another and very important advantage that it has over our American corn is that it produces on the same number and length of ears from 10 to 30 per cent more corn. Thus, its increased yield would be about one-quarter more than the average of the American variety per acre. If it is possible to successfully introduce this variety of corn in the United States, and if it will grow as well there as here, and my belief is that it will produce even better, it would have an enormous effect on the total corn production of our country. Another great advantage it has is that it thrives in a climate similar to that of our Northern States, and it may be that it can be grown in sections of our country that will not produce our American varieties. Another feature of this corn is its very fine texture; I believe it would grind as fine as wheat flour, and as corn flour it would be far superior to meal and in many respects and for many uses it would be equal to wheat flour."

33448 to 33457—Continued.

33449. White Cuzco.

33450. Yellow Cuzco.

33451. Variegated red Cuzco.

33452. White mottled with black.

33453. Black.

33454. Dark red.

33455. Red.

33456. Variegated red sweet corn.

33457. White. "A sweet or sugar corn which is so very sweet that sugar or sirup could be made from it."

33458. VICIA FABA L. **Broad bean.**

From La Paz, Bolivia. Presented by Hon. Horace G. Knowles, American minister. Received April 20, 1912.

33459. ZEA MAYS L. **Corn.**

From Shanghai, China. Presented by Dr. Elizabeth Reifsnyder, Margaret Williamson Hospital, Woman's Union Mission, West Gate, Shanghai. Received April 22, 1912.

White glutinous variety.

33460 to 33464. VITIS VINIFERA L. **Grape.**

From Spain. Presented by Count de San Juan, Barcelona, Spain. Received April 11 and 12, 1912.

Cuttings of the following; quoted notes by Count de San Juan:

33460. "'*Momagastro*' Oliver. From Aragon. A very productive variety and very early; ripens a month before the others. Fruit a brilliant red color. This variety has almost disappeared on account of the Phylloxera."

33461. "'*Vinatera San Juan.*' From Aragon. Excellent wine variety, 'Borgogna'."

33462. "'*Macabeo de Sitjes.*' From Cataluna."

33463. "'*Ojo de liebre (negro).*' From Cataluna."

33464. "'*Sumoy (negro).*' From Cataluna."

33465. MEDICAGO FALCATA L.

From Semipalatinsk, Siberia. Presented by Mr. G. T. Miroshnikoff, at the request of Mr. Frank N. Meyer, Bureau of Plant Industry. Received February 19, 1912.

33466. PINUS LEUCODERMIS Antoine. **Pine.**

From Sofia, Bulgaria. Presented by Mr. K. Baicoucheff, Chief Inspector of Waters and Forests of Bulgaria, at the request of Mr. Alaricus Delmard. Received April 2, 1912.

Distribution.—On the wooded slopes of the mountains in Dalmatia, Bulgaria, and Montenegro, at an elevation of 4,000 to 5,000 feet.

33467 to 33470.

From La Guayra, Venezuela. Procured by Mr. Thomas W. Voetter, American consul. Received April 23, 1912.

The following material; quoted notes and names as given by Mr. Voetter:

33467 and 33468. ARRACACIA XANTHORRHIZA Bancr. **Arracacha.**

33467. "*Apio aleman.*"

Tubers.

33468. "*Apio amarillo.*"

Tubers.

33469. MAMMEA AMERICANA L. **Mammee.**

"*Mamey.*"

Seed.

Distribution.—The West Indies and in Central America and South America from Panama and Colombia to Brazil.

33470. PASSIFLORA QUADRANGULARIS L. **Passion fruit.**

"This fruit which is about 10 inches long, is known here by the name of *Parcha Granadina.*"

"Both the Mamey and Parcha are prepared by boiling the flesh with sugar to make a preserve or dulce, as well as being eaten in the natural state."

33471 to 33491. SOLANUM TUBEROSUM L. Potato.

From Kenty, Galicia, Austria. Purchased from Heinrich Dolkowski & Son. Received April 22, 1912.

Tubers of the following:

33471. *Ordon.*
33472. *Gastold.*
33473. *Gryf.*
33474. *Mohort.*
33475. *Gracya.*
33476. *Busola.*
33477. *Switez.*
33478. *Farys.*
33479. *Potentat.*
33480. *Cedon.*
33481. *Gedymin.*
33482. *Senator.*
33483. *Królewicz.*
33484. *Soliman.*
33485. *Attyk.*
33486. *Zbyszek.*
33487. *Petronius.*
33488. *Aldona.*
33489. *Koral.*
33490. *Projata.*
33491. *Ursus.*

These varieties were procured for the breeding work being done by the potato specialists of this department.

33492 and 33493. FURCRAEA spp.

From Georgetown, Demerara, British Guiana. Presented by Mr. F. A. Stockdale, Assistant Director and Government Botanist, Botanic Gardens, Science and Agriculture Department. Received April 13 and 24, 1912.

Bulbils of the following:

33492. FURCRAEA FOETIDA (L.) Haworth.
(*Furcraea gigantea* Vent.)

See No. 10967 for previous introduction.

Distribution.—Widely spread in the West Indies and tropical America; also introduced in various parts of the Old World.

33492 and 33493—Continued.

33493. FURCRAEA CUBENSIS (Jacq.) Vent. **Cajun.**

See No. 3449 for previous introduction.

Distribution.—Cuba and other West Indian islands; also in Brazil, where it was probably introduced.

33494. CUCUMIS MELO L. **Muskmelon.**

From Valencia, Spain. Presented by Mr. Robert Frazer, jr., American consul. Received April 17, 1912.

"This belongs to the variety of 'winter melon' called '*Bronceados*' and has been carefully selected from exceptionally choice fruit." (*Frazer.*)

33495 to 33501.

From Enfield, Middlesex, England. Purchased from Amos Perry. Received April 22, 1912.

Plants of the following; quoted notes from Perry's catalogue No. 135, 1911.

33495. ARISTOTELIA CHILENSIS (Molina) Stuntz. **Maqui.**

(*Cornus chilensis* Molina, Saggio sulla Storia Naturale del Chili, p. 173, 1782.)

Seeds of this small evergreen tiliaceous tree from Chile were received under the name *Aristotelia macqui* L'Herit. (Stirpes novæ, p. 31, pl. 16, 1784). The earliest name given to the plant, however, was *Cornus chilensis*, published by Molina in 1782. It is necessary, therefore, to make the new combination *Aristotelia chilensis*.

33496. BERBERIS BUXIFOLIA Lam. **Barberry.**

Variety *nana*. "Dense compact tufts, about a foot. Flowers deep yellow. For the front of the mixed border or rockery. A showy plant."

33497. BERBERIS HOOKERII Lemaire. **Barberry.**

"This plant has beautiful golden-yellow flowers in early spring, succeeded by black berries."

33498. BERBERIS JAPONICA BEALEI (Fortune) Skeels.

(*Berberis bealei* Fortune.) **Barberry.**

"Pretty evergreen species, dark-green, hollylike foliage, and long racemes of pale-yellow flowers. Must be grown against a south wall."

33499. EUONYMUS LATIFOLIUS Miller.

Var. *albus marginatus*.

"The leaves are large, evergreen, wonderfully bright; as a small shrub, invaluable."

33500. JASMINUM BEESIANUM Forrest and Diels. **Jasmine.**

"A new Chinese novelty and remarkably free, being the only red jasmine yet known. It is a quick grower, quite hardy. Flowers very abundant, of a bright, deep cherry red."

33501. COTONEASTER PYRACANTHA (L.) Spach.

(*Crataegus pyracantha* Medic.)

Var. *lalandi*.

"One of the best shrubs for a north wall. Evergreen and covered all the winter with myriads of bright-scarlet berries."

33502 to 33507.

From Burringbar, New South Wales, Australia. Presented by Mr. B. Harrison. Received July 31, 1911. Numbered April 27, 1912.

Seeds of the following; quoted notes by Mr. Harrison:

33502. CARICA PAPAYA L. **Papaya.**

"Long pawpaw."

33503. (Undetermined.) **Emu bush.**

"Edible blue-fruited emu bush or shrub."

33504. RUBUS sp.

"Native red-berried bramble. A good fruit."

33505. RUBUS sp. **Raspberry.**

"The Australian native raspberry."

33506. SOLANUM ACULEATISSIMUM Jacq.

"The edible solanum. For experimental work."

33507. ASSONIA CALANTHA (Schum.) Stuntz.

This tropical African sterculiaceous shrub was received under the name *Dombeya calantha* Schumann (Engler Monog. Afr. Pfl. vol. 5, p. 28, 1900). It has been shown, however, in Inventory 24 of this series (Bur. Pl. Ind. Bul. 223, p. 64, 1911) that Assonia is the correct name for this genus, and it is therefore necessary to use that name for this species.

"Currajong shrub. The bark makes a very good fiber, and is used by the natives for making fishing lines and nets. The leaves make a good fodder for stock. The flowers are white, rich in honey, and have a nice perfume."

33508. AGAVE CANTALA (Haw.) Roxb. **Manila maguey.**

From Manila, Philippine Islands. Presented by Mr. M. M. Saleeby, fiber expert, Bureau of Agriculture, through Mr. Lyster H. Dewey, Fiber-Plant Investigations, Bureau of Plant Industry. Received April 25, 1912.

See No. 32480 for previous introduction and description.

33509. PELARGONIUM MULTIBRACTEATUM Hochst. **Geranium.**

From Kew, England. Presented by Sir David Prain, Director, Royal Botanic Garden. Received April 29, 1912.

Distribution.—In thickets on rocky mountain slopes in Abyssinia.

Cuttings.

33511. CUCURBITA PEPO L. **Squash.**

From Puerto Allegro, Brazil. Presented by Mr. Willy Muller, Hortus Nucerensis, Nocera Inferiore, Naples, Italy. Received April 25, 1912.

"'*Mogango.*' A very fine squash, which I hope will be useful, especially for Florida, Texas, and southern California." (*Muller.*)

33512 to 33515.

From Barcelona, Spain. Presented by Count de San Juan. Received April 27, 1912.

Seeds of the following; quoted notes by Count de San Juan:

33512. CAPPARIS SPINOSA L. **Caper.**

See Nos. 28126 and 28972 for previous introductions.

33513. CUCUMIS MELO L. **Muskmelon.**

33512 to 33515—Continued.

33514. Onobrychis sativa Lam. **Sainfoin.**

(*Onobrychis viciaefolia* Scop.)

"A kind of clover, good for dry land."

33515. Prunus domestica L. **Plum.**

"*Claudia.*"

33516. Juglans regia L. **Walnut.**

From China. Procured by Mr. F. Bade, Tientsin Nursery Gardens, Tientsin, China, at the request of Mr. Samuel S. Knabenshue, American consul general, Tientsin. Received April 30, 1912.

Cuttings.

33518 to 33520.

From McCale Sana, Lumbwa, British East Africa. Presented by Mrs. E. L. Smith. Received April 29, 1912.

Seeds of the following; quoted notes by Mrs. Smith:

33518. Holcus sorghum L. **Sorghum.**

(*Sorghum vulgare* Pers.)

"Matama grain, grown by most of the different native races in this country."

"This is one of the characteristic forms of east-central Africa, apparently identical with some forms of seed from Amani, German East Africa, received by the Division of Agrostology some years ago." (*Carleton R. Ball.*)

33519. Vigna sp.

"An indigenous creeper. A rampant grower."

33520. Vigna sp.

"An indigenous perennial creeper. Leguminous."

33521. Ribes dikuscha Fisch. **Currant.**

From Yakutsk, Siberia. Presented by Mr. Dimitry Kaschkaroff, Soukhodol, Tulsk Government, Siberia. Received March 7, 1912. Numbered May 4, 1912. These seeds were sent at the request of Mr. Frank N. Meyer, Bureau of Plant Industry.

See No. 32227 for description.

33522. Ziziphus sp.

From Palm Springs, Cal. Presented by Mr. P. D. Barnhart, Pasadena, Cal., who procured them from Dr. Coffman, on whose place they grew. Received May 4, 1912.

Seeds.

33523 to 33539. Vitis vinifera L. **Grape.**

From Almeria, Spain. Procured by Mr. James Murison, acting consular agent, at the request of Mr. Walter T. Swingle. Received May 4, 1912.

Cuttings of the following:

33523. *Guadalupe.*

33524. *Marquesa.*

33525. *Rojo de chella.*

33526. *Moscatel negro.*

33527. *Bocalilla.*

33528. *Leonada.*

33529. *Forralba.*

33530. *Bocal.*

33531. *Fresa.*

33532. *Rayadao melonera.*

33523 to 33539—Continued.

33533.	*Malvasia gruesa.*	**33537.**	*Negrilla.*
33534.	*Albillo resado.*	**33538.**	*Polop negro.*
33535.	*Moscatel comun.*	**33539.**	*Rojal.*
33536.	*Albillo.*		

33541 and 33542.

From Basse Terre, Guadeloupe, French West Indies. Presented by Mrs. Frederick F. DuMont, American consulate. Received May 6, 1912.

Seeds of the following; quoted notes by Mrs. DuMont:

33541. CUCURBITA PEPO L. **Pumpkin.**

"Seed from a very large fruit over which all the natives were greatly excited, eagerly taking the seeds. It was 27 inches in diameter and tasted very well when cooked."

33542. CUCUMIS MELO L. **Muskmelon.**

"Seed from an especially good fruit eaten in February, 1912. Large, oblong, 9½ inches long, 6½ inches broad. Not very deeply grooved. Yellowish green outside with a deep-yellow flesh. Pulp extends well toward the center of the melon, is sweet with a special flavor."

33543 to 33550.

From India. Presented by A. C. Hartless, Superintendent of the Botanical Gardens, Seharunpur, India, at the request of Mr. C. V. Piper, Bureau of Plant Industry. Received April 26, 1912.

A collection of seeds of trees and shrubs, mostly ornamental. They are likely to succeed in this country only in southern Florida and southern California.

Quoted notes by Mr. Piper:

33543. AMERIMNON LANCEOLARIUM (L. f.) Kuntze.
(*Dalbergia lanceolaria* L. f.)

"A tall, graceful tree, fairly satisfactory for shade. It is not as good as the sissoo."

Distribution.—On the plains of India from the western Himalayas to Ceylon.

33544. BEAUMONTIA GRANDIFLORA (Roth) Wall. **Nepal trumpet flower.**

"An evergreen climber with broad leaves and bearing throughout the summer large, pure white, odorous, trumpet-shaped flowers. A very handsome vine for porches and trellises."

Distribution.—The slopes of the Himalayas up to an elevation of 4,000 feet from Nepal to Sikkim in northeastern India.

33545. BERBERIS ARISTATA DC. **Barberry.**

See No. 27116 for previous introduction.

33546. DEGUELIA TIMORIENSIS (DC.) Taubert.
(*Derris scandens* Benth.)

"A climbing legume used for trellises and arbors."

Distribution.—Throughout India and eastward to China, and through the Malay Archipelago to Australia.

33547. HETEROPHRAGMA ADENOPHYLLUM (DC.) Seem.

"A large tree with handsome leaves and large yellow flowers. Used as an avenue tree."

33543 to 33550—Continued.

33548. Lagerstroemia speciosa (L.) Pers. **Crape myrtle.**

(*Lagerstroemia reginae* Retz.)

"An evergreen tree growing to a height of 30 to 40 feet, with handsome foliage and large purple flowers in clusters. One of the handsomest flowering trees of the East Indies."

33549. Porana paniculata Roxb. **Bridal bouquet.**

"A perennial climbing vine with numerous panicles of small white flowers. It is much used as an ornamental climber in India and is one of the best vines for this purpose."

Distribution.—Throughout the jungles of India, rising to an elevation of 3,000 feet in the Himalayas and extending eastward to Java.

33550. Prosopis chilensis (Molina) Stuntz. **Algaroba.**

(*Ceratonia chilensis* Molina, Saggio sulla Storia Naturale del Chili, p. 172, 1782.)

(*Mimosa juliflora* Swartz, Prodromus, p. 85, 1788.)

(*Prosopis juliflora* (Swartz) D. C., Prodromus, vol. 2, p. 447, 1825.)

Seeds of this mimosaceous tree from Chile were received under the name *Prosopis juliflora* (Swartz) DC., based on *Mimosa juliflora* Swartz. The earliest name given this plant, however, was *Ceratonia chilensis* Molina, published in 1782, which specific name it is necessary to adopt.

See Nos. 31238 and 31601 for description.

33551 to 33587.

From Lucknow, India. Presented by Mr. H. J. Davies, Superintendent of the Government Horticultural Gardens, Lucknow, at the request of Mr. C. V. Piper, Bureau of Plant Industry. Received April 26, 1912.

"A collection of seeds of trees and shrubs, mostly ornamental. These trees and shrubs are likely to succeed in this country only in southern Florida and southern California." (*Piper.*)

Quoted notes by Mr. Piper:

33551. Acacia scorpioides (L.) W. F. Wight. **Babul.**

This plant was received under the name *Acacia arabica* (Lam.) Willd., under which name it had been listed in previous numbers of these inventories. The earliest name given this plant was *Mimosa scorpioides* L. (Species Plantarum, p. 521, 1753), as was recognized by Mr. W. F. Wight in 1905 (*Useful Plants of Guam, Contributions from U. S. National Herbarium, vol 9, p. 173*).

"Variety *Baboul.*"

33552. Adansonia digitata L. **Baobab.**

"A tree remarkable for its very thick trunk and compact, round crown. The flowers are large and white."

33553. Albizzia lucida (Roxb.) Benth.

"A large spreading tree with very handsome foliage."

Distribution.—A large tree found in Nepal, Assam, Sylhet, and Burma, in India, and in Singapore.

33554. Amerimnon sissoo (Roxb.) Kuntze. **Sissoo.**

(*Dalbergia sissoo* Roxb.)

"A deciduous tree, growing to a height of 60 to 80 feet, of handsome form and beautiful foliage. It is moderately drought resistant. The timber is very valuable and is used for all kinds of furniture. This tree should succeed well in California."

33551 to 33587—Continued.

Distribution.—The plains of India and up to an elevation of 5,000 feet in the central Himalayas; also in Afghanistan and Baluchistan.

33555. ANOGEISSUS PENDULA Edgew.

"A medium-sized ornamental tree with pendulous branches."

Distribution.—A bush or low tree with small leaves found in the northwestern part of India.

33556. ANOGEISSUS sp.

"A small deciduous tree."

33557. ARGYREIA NERVOSA (Burm.) Boj. **Elephant creeper.**

Distribution.—The plains of India and up to an elevation of 1,000 feet; also in China and Java.

33558. BAUHINIA KURZII Prain.

(*Bauhinia rosea* Kurz.)

Distribution.—A shrubby climber found at an elevation of 5,000 feet in Tenasserim and in Burma in India.

33559. BAUHINIA VAHLII Wight and Arnott. **Maloo.**

"A shrub climber growing to an enormous size, having large butterfly-shaped leaves and showy cream-colored flowers."

Distribution.—A climbing vine found at the base of the central and eastern Himalayas up to an elevation of 2,500 feet in northern India.

33560. BEAUMONTIA GRANDIFLORA (Roth) Wall. **Nepal trumpet flower.**

"A creeper."

See No. 33544 for previous introduction.

33561. CALAMUS ROXBURGHII Griffith. **Rattan.**

"Cane palm. One of the most elegant of feathery-leaved palms, with light, graceful leaves armed with spines. It is useful either for pot work or for growing in the open."

Distribution.—A climbing rattan palm found in Bengal and on the Coromandel Coast of India.

33562. CASSIA GLAUCA Lam.

"A large shrub or small tree producing an abundance of yellow flowers."

33563. CERBERA THEVETIA L.

Seeds of this species were received under the name *Thevetia nereifolia* Juss. The earliest name for this plant was *Cerbera thevetia* L. (Species Plantarum, p. 209, 1753). The type of the genus Cerbera, as determined by the references in Linnæus's *Genera Plantarum*, 1754, is *C. ahouaj* L. (Species Plantarum, p. 208), with which *C. thevetia* is universally regarded as congeneric. For this reason the original generic name Cerbera should be retained for this species as well as for *C. ahouaj*, which is generally known as *Thevetia ahouaj*.

"A large evergreen shrub with handsome foliage. The tubular yellow flowers are produced in abundance throughout the summer."

Distribution.—Tropical America, extending from Vera Cruz and Acapulco in southern Mexico southward through tropical South America, and in the West Indies.

33564. CORYPHA ELATA Roxb. **Palm.**

Distribution.—A tall unarmed palm with large circular leaves, found in Bengal and Burma in India.

33551 to 33587—Continued.

33565. CRYPTOSTEGIA GRANDIFLORA R. Brown.

See S. P. I. Nos. 19204 and 33405 for previous introductions.

33566. DEGUELIA TIMORIENSIS (DC.) Taub.
(*Derris scandens* Benth.)

"An evergreen shrub, vigorous-growing climber used to cover trellises and houses."

33567. DIOSPYROS PEREGRINA (Gaertn.) Guerke.
(*Diospyros embryopteris* Pers.)

"An evergreen tree, 25 to 30 feet high with a dense, spreading crown. The tree is slow in growth, but on account of the gorgeous green foliage, compact habit, and large, round, russet fruit, it is a very attractive tree."

See No. 32800 for previous introduction.

33568. FIRMIANA COLORATA (Roxb.) Brown.
(*Sterculia colorata* Roxb.)

"A pyramidal deciduous tree growing 30 to 40 feet high. In spring before the leaves appear it produces abundant orange-red flowers."

Distribution.—A large tree found in the eastern part of India and in Ceylon.

33569. GARCINIA LIVINGSTONEI T. Anderson.

"An evergreen tree of small size and yielding a small yellow fruit."

Distribution.—A bush or small tree found along the steep banks of the Zambesi River in East Africa. Native names *Motsauri*, *Mokononga*.

33570. GUILANDINA BONDUC L.
(*Caesalpinia bonducella* Flem., Asiatic Researches, vol. 11, p. 159, 1810.)

The name generally applied to the gray-seeded nicker nut is *Caesalpinia bonducella* Fleming. Trimen, in the Journal of the Linnean Society, v. 24, p. 141, 1887, has identified as *Caesalpinia bonducella* the specimen of Flora Zeylanica, No. 156, on which Linnæus based his *Guilandina bonduc* in Species Plantarum, p. 381, 1753. According to the present rules of botanical nomenclature, it is necessary to adopt this earlier name for the species. (See Science, vol. 37, p. 921, 1913.)

Distribution.—A climbing shrub, with lead-colored seeds, found generally throughout the Tropics; probably a native of India.

33571. HAMELIA PATENS Jacq.

"A very handsome evergreen shrub growing to a height of 10 to 15 feet. The sprays of tooth-shaped orange-red flowers are borne for a large part of the year."

Distribution.—Found in southern Florida and Mexico and southward to Peru and Brazil.

33572. HETEROPHRAGMA ADENOPHYLLUM (DC.) Seem.

See Nos. 32809 and 33547 for previous introductions.

33573. HIPTAGE BENGHALENSIS (L.) Kurz.

"A climbing shrub with yellow and white flowers."

Distribution.—Found in the hotter parts of India and eastward to China and Java.

33574. HOLOPTELEA INTEGRIFOLIA (Roxb.) Planchon. **Indian-elm.**

"The Indian-elm. A large spreading tree utilized for shade."

33575. LAGERSTROEMIA SPECIOSA (L.) Pers. **Crape myrtle.**

See No. 33548 for previous introduction.

33551 to 33587—Continued.

33576. MORINGA OLEIFERA Lam. **Horse-radish tree.**

(*Moringa pterygosperma* Gaertn.)

"The horse-radish tree. A small deciduous tree reaching a height of 30 feet. The foliage is feathery and handsome. The roots and seeds are used as a substitute for horse-radish."

Distribution.—Found in the forests of the western Himalayas in northern India and generally cultivated in the tropics.

33577. NYCTANTHES ARBOR-TRISTIS L. **Hursinger.**

"A dwarf tree or large shrub producing highly scented white flowers."

See No. 32817 for previous introduction.

33578. OWENIA CERASIFERA Muell. **Queensland-plum.**

See No. 32819 for description.

33579. PHYLLANTHUS EMBLICA L. **Emblic myrobalan.**

"A large tree with fine foliage. The fruit is eaten by the natives."

33580. PONGAM PINNATA (L.) W. F. Wight.

(*Pongamia glabra* Vent.)

"A deciduous tree with pendulous branches growing to a height of about 40 feet. The foliage is bright and handsome."

33581. PUTRANJIVA ROXBURGHII Wallich.

"A very ornamental, small evergreen tree."

Distribution.—Found throughout tropical India from the Himalayas in Kumaon eastward and southward to Pegu and Ceylon.

33582. SAPINDUS EMARGINATA Vahl. **Soap nut.**

Distribution.—Possibly only a form of *Sapindus trifoliata* L. found about villages in southern India and cultivated in Bengal.

33583. SOLANUM MACRANTHUM Dunal.

Distribution.—A shrubby Solanum from the province of Para in Brazil.

33584. SOYMIDA FEBRIFUGA (Roxb.) Juss.

"A medium-sized tree with handsome dark-green foliage."

Distribution.—A large tree found on the low hills in the northwestern, central, and southern parts of India and in Ceylon.

33585. STIGMAPHYLLON LINGULATUM (Poir.) Small.

(*Stigmaphyllon periplocaefolium* (Desf.) Juss.)

"A rapidly growing climber with handsome yellow flowers."

33586. TERMINALIA BELLERICA (Gaertn.) Roxb.

"A fine, large, shapely tree reaching a height of 80 to 90 feet; foliage evergreen and handsome. The only objection to this tree is the rather unpleasant odor of the blossoms."

33587. THESPESIA POPULNEA (L.) Solander.

"A moderate-sized tree commonly cultivated throughout India. It has large yellow flowers."

33588 to 33594.

From India. Collected by Mr. C. V. Piper, Bureau of Plant Industry, and forwarded by the American consul general, Calcutta, India. Received April 26, 1912.

33588 to 33594—Continued.

Seeds of the following; quoted notes by Mr. Piper:

33588. ACER OBLONGUM Wall. **Maple.**

"(No. 126, September 23, 1911.) A handsome maple tree with oblong leaves. Abundant on the mountain slopes at Mussoorie, India, and also cultivated at Dehra Dun."

33589. BERBERIS sp. **Barberry.**

"(No. 129, September 23, 1911.) From Mussoorie. A shrub growing 6 to 12 feet high, with black berries. Perhaps the same as the species collected at Newara Eliya (S. P. I. No. 32102)."

33590. CUCUMIS MELO L. **Muskmelon.**

"(No. 109, September 19, 1911.) Purchased in the market at Lucknow. Quality only fair."

33591. MEIBOMIA sp.
(*Desmodium* sp.)

"(No. 130, September 23, 1911.) From Mussoorie. A shrub 6 to 12 feet high with handsome pink flowers, flowers in racemes. Decidedly ornamental."

33592. ROSA sp. **Rose.**

"(No. 125, September 23, 1911.) From Mussoorie. A half-climbing species growing to a height of 6 to 12 feet. Flowers not seen."

33593. IMPATIENS sp.

"(No. 131, September 23, 1911.) From Mussoorie. A much-branched species growing 3 to 5 feet high, with numerous purple flowers. Very abundant at Mussoorie."

33594. IMPATIENS sp.

"(No. 132, September 23, 1911.) From Mussoorie. A species with small stems, 1 to 2 feet high, bears yellow flowers."

33595 to 33623.

From India. Collected by Mr. C. V. Piper, Bureau of Plant Industry, and forwarded by the American consul general, Calcutta, India. Received April 26, 1912.

Seeds of the following; quoted notes by Mr. Piper:

33595. ANDROPOGON ANNULATUS Forsk.

"(No. 139.) Seed from Lahore; collected September 29, 1911."

33596. ANDROPOGON ANNULATUS Forsk.

"(No. 107.) One of the abundant grasses of the Ganges Valley, growing to a height of from 2 to 3 feet and said to furnish an excellent quality of hay. Collected at Lucknow, September 19, 1911."

33597. ANDROPOGON PERTUSUS (L.) Willd.

"This seed was presented by Mr. A. C. Hartless, Superintendent of the Botanical Gardens, Seharunpur, India. One of the most abundant grasses of the Ganges Valley, growing 2½ feet high, with fine stems, and considered to furnish an excellent quality of hay."

33598. ALYSICARPUS VAGINALIS (L.) DC.

"(No. 118, September 26, 1911.) From Dehra Dun. A spreading legume; considered one of the best grazing plants for cattle."

33595 to 33623—Continued.

33599. Alysicarpus bupleurifolius (L.) DC.

"(No. 117, September 26, 1911.) From Dehra Dun. A similar but apparently distinct species from the preceding (S. P. I. No. 33598)."

Distribution.—Throughout India and eastward to China and in the Malay Archipelago and the Polynesian Islands.

33600. Alysicarpus vaginalis (L.) DC.

"(No. 116, September 25, 1911.) From Dehra Dun. Very similar to the preceding (S. P. I. No. 33599), and perhaps the same."

33601. Cenchrus biflorus Roxb.

"(No. 106, September 20, 1911.) Collected at Lucknow."

See No. 33602 for description.

Distribution.—The plains of India and westward to Baluchistan, Arabia, and northern Africa.

33602. Cenchrus biflorus Roxb.

"(October 7, 1911.) Collected at Agra. This grass is very similar to No. 105 (S. P. I. No. 33611) in all respects, but is regarded as inferior for feed."

33603. Cenchrus biflorus Roxb.

"(No. 138, September 29, 1911.) From Lahore."

See No. 33602 for description.

33604. Crotalaria medicaginea Lamarck.

"(No. 123, September 13, 1911.) From Samaria Ghat. An annual erect legume growing 18 to 30 inches high, very closely resembling alfalfa in appearance. Flowers pale yellow. The leaves have a good flavor, and it looks as if it might be a good fodder plant."

33605. Crotalaria medicaginea Lamarck.

"(No. 124, September 15, 1911.) From Waini. The same as the above (S. P. I. No. 33604)."

Distribution.—From Afghanistan eastward through India and China, and through the Malay Archipelago to Australia.

33606. Capriola dactylon (L.) Kuntze.
(*Cynodon dactylon* Pers.)

"This is the common form as it appears in the Ganges Valley and should be tested in comparison with the form in this country. This seed was presented by Mr. A. C. Hartless, Superintendent of the Botanic Gardens, Seharunpur, India."

33607. Festuca gigantea (L.) Vill.

"(No. 127, September 23, 1911.) From Mussoorie. A shade grass growing to a height of 2½ to 3 feet."

Distribution.—Throughout Europe and northern Asia, extending southward to the Himalayas, and in tropical Africa.

33608. Indigofera linifolia (L. f.) Retz.

"(No. 120, September 22, 1911.) From Dehra Dun. A legume with fine stems and numerous small leaves, growing to a height of 6 or 8 inches. Considered one of the best pasture plants of the Ganges Valley."

33609. Panicum antidotale Retz.

"(No. 108, September 20, 1911.) From Lucknow. A coarse species having much the same habit as guinea grass, growing abundantly at Lucknow."

33595 to 33623—Continued.

33610. CORIDOCHLOA CIMICINA (L.) Nees.

(*Panicum cimicinum* Retz.)

"(No. 114, September 25, 1911.) From Dehra Dun. A vigorous species growing 2½ feet high. Perhaps of value for Florida range lands."

Distribution.—Throughout the plains and lower hills of India and eastward to China; also in the islands of the Malay Archipelago.

33611. PENNISETUM CILIARE (L.) Link.

(*Pennisetum cenchroides* Rich.)

"(No. 105, September 20, 1911.) From Lucknow. This is the best native hay grass of the Ganges Valley, growing to a height of 2½ feet and forming nearly pure growths. Much of it is cut for hay."

33612. PENNISETUM CILIARE (L.) Link.

(*Pennisetum cenchroides* Rich.)

"(No. 140, September 29, 1911.) From Lahore."

Distribution.—First described from South Africa; also found in tropical Africa and in southern Europe and Asia, extending from Sicily eastward to India.

33613. PENNISETUM ORIENTALE Rich.

"(No. 134, September 22, 1911.) From Mussoorie. A tall and coarse species growing to a height of 5 feet and quite ornamental."

Distribution.—Asia Minor and northern Africa, and eastward to India.

33614. CHAETOCHLOA INTERMEDIA (Roem. and Schult.) Stuntz.

(*Setaria intermedia* Roem. and Schult., Systema Vegetabilium, vol. 2, p. 489, 1817.)

The seeds of this Indian grass were received as a species of Setaria and were identified as *Setaria intermedia*, which seems not to have been heretofore transferred to the genus Chaetochloa.

"(No. 111, September 14, 1911.) From Pusa. A grass 12 to 24 inches high forming a pure thick growth in the shade of trees."

Distribution.—Found on the plains and lower hills of India and in Ceylon.

33615. CHAETOCHLOA LUTESCENS (Weigel) Stuntz.

(*Panicum lutescens* Weigel, Observationes botanicæ, p. 20, 1772.)

Seeds of this species have been listed in previous numbers of these inventories as *Chaetochloa glauca* (L.) Scribner, based on *Panicum glaucum* L. (Species Plantarum, p. 56, 1753). The type of Linnæus's species has been determined as *Pennisetum glaucum* (L.) R. Br., hitherto listed in these inventories as *Pennisetum americanum* (L.) Schum. It is necessary, therefore, to adopt for the plant under discussion the earliest specific name, *lutescens*.

"(No. 122, September 22, 1911.) From Dehra Dun. A small species with small heads. May have some value as a summer pasture plant."

33616. SYNTHERISMA SANGUINALIS (L.) Dulac.

(*Panicum sanguinale* L.)

"(No. 119, September 21, 1911.) From Dehra Dun. A species closely resembling common crab-grass and of similar value."

33617. CAPRIOLA DACTYLON (L.) Kuntze. **Bermuda grass**

(*Cynodon dactylon* Pers.)

"(No. 136, October 3, 1911.) From Alighur. A species growing in abundance at Alighur, India. Apparently is a much more vigorous grower than ordinary crab-grass."

33595 to 33623—Continued.

33618. (Undetermined.)

"(No. 113, September 22, 1911.) From Dehra Dun. A prostrate, leguminous vine of vigorous growth."

33619. SYNTHERISMA CILIARIS (Retz.) Schrad.

(*Panicum ciliare* Retz.)

"(No. 128, September 23, 1911.) From Mussoorie. A species having much the habit of ordinary crab-grass."

33620. ERIOCHLOA POLYSTACHYA H. B. K.

"(No. 135, October 3, 1911.) From Alighur, India. A grass that will perhaps be of value for pasturage."

Distribution.—First described from the vicinity of Guayaquil in Ecuador and generally distributed throughout the Tropics.

33621. FALCATA sp. (?)

(*Amphicarpaea* sp.)

"(No. 137, September 29, 1911.) From Lahore. A trailing leguminous vine growing in dry soil."

33622. PASPALUM ROYLEANUM Nees.

"(No. 112, September 14, 1911.) From Pusa. A grass having somewhat the habit of crab-grass and considered to be excellent pasturage. Abundant at Pusa."

Distribution.—Hilly districts of India from Kashmir eastward and southward to Ceylon; also in tropical Africa.

33623. ZORNIA DIPHYLLA (L.) Pers.

"(No. 121, September 21, 1911.) From Dehra Dun. An annual legume growing to a height of 4 to 8 inches and considered to furnish excellent pasturage."

33624. LYCOPERSICON ESCULENTUM Miller. **Tomato.**

From Burringbar, New South Wales, Australia. Presented by Mr. B. Harrison. Received July 31, 1911. Numbered May 20, 1912.

"Australian tomato. A heavy yielder and resists cold weather better than other varieties." (*Harrison.*)

33625 to 33636.

From Calcutta, India. Secured in the Calcutta market by Mr. C. V. Piper, Bureau of Plant Industry, and forwarded by Mr. I. H. Burkhill, office of Economic Products, Calcutta. Received April 26, 1912.

Seeds of the following; quoted notes by Mr. Piper:

33625. CUCUMIS MELO L. **Muskmelon.**

"(No. A.) Cylindric, 6 to 8 inches long, 2½ inches in diameter. Skin cream color. Flesh pale orange, dry mealy, not much flavor. Splits when ripe."

33626. BENINCASA HISPIDA (Thunb.) Cogn. **Wax gourd.**

(*Benincasa cerifera* Savi.)

"(No. C.) A variety with the fruit cylindric, 8 to 10 inches long, 5 to 6 inches in diameter."

33627. CITRULLUS VULGARIS Schrad. **Watermelon.**

"(No. D.) Globose pyriform, 6 to 8 inches in diameter, marbled green and white, with 12 faint longitudinal ribs."

33625 to 33636—Continued.

33628. Momordica sp. (?)

"(No. F.) Small green, 4 inches long, somewhat pointed at each end. Smooth. Pulp red."

33629. Cucumis melo L. **Muskmelon.**

"(No. J.) Oval, 8 to 10 inches long, with a fine, open-surface reticulation; clear yellow, no ribs. Flesh apricot color, very sweet, not much juice, no other flavor. A fairly good melon."

33630. Citrullus vulgaris Schrad. **Watermelon.**

"(No. K.) Small, not very good."

33631. Citrullus vulgaris Schrad. **Watermelon.**

"*Paschimi.*"

33632. Cucumis melo L. **Muskmelon.**

"From Lahore. Good quality."

33633. Feronia elephantum Correa. **Wood-apple.**

"(No. E.) Globose; size of a baseball."

See No. 25888 for description.

33634. Momordica sp. (?)

"(No. B.) Fruit yellow, small, pyriform, thickly tuberculate, 2½ inches long."

33635. Spondias pinnata (L.) Kurz.

(*Spondias mangifera* Willd.)

"(No. G.) Green, subpyriform, 2 inches long, pulp thin, acid, odor of green apples. Stone large, fibrous. Abundant in the market in September."

33636. Spondias cytherea Sonnerat. **We fruit.**

(*Spondias dulcis* Forster.)

"(No. H.) Oval, size of large egg, russet when mature. Flesh yellow, odor of pineapples. Stone fibrous. Abundant in the market in September."

33637. Capsicum annuum L. **Red pepper.**

From Chihuahua, Mexico. Presented by Mr. Marion Letcher, American consul. Received October 9, 1911. Numbered May 6, 1912.

"This looks like a red pepper of the type to which the Hungarian paprika belongs and is of particular interest on account of the probability of its disease resistance." (*R. H. True.*)

33638. Holcus sorghum L. **Shallu sorghum.**

(*Sorghum vulgare* Pers.)

Presented by Mr. Robert L. Luáces, Camaguey, Cuba. Received April 5, 1912. Numbered May 8, 1912.

"This seed is supposed to have come from Gran Caiman [Grand Cayman] Island." (*Luáces.*)

"This apparently belongs in or near the group comprising Hackel's variety *roxburghii.*" (*Carleton R. Ball.*)

33639. Gossypium barbadense L. **Cotton.**

From Alexandria, Egypt. Presented by J. Planta & Co. Received May 9, 1912.

Assil. Procured for experimental planting in this country by Mr. O. F. Cook, Bureau of Plant Industry.

33640 to 33642.

From Pusa, Bengal, India. Presented by Mr. A. C. Dobbs, Assistant Inspector General of Agriculture in India. Received May 9, 1912.

Seeds of the following:

33640. ALYSICARPUS VAGINALIS NUMMULARIFOLIUS Baker.

"A tall-growing legume, readily eaten by cattle. Where much pastured it tends to become dense and prostrate." (*C. V. Piper.*)

Distribution.—Found with the species, throughout the Tropics of the Old World.

33641. AMERIMNON SISSOO (Roxb.) Kuntze. **Sissoo.**
(*Dalbergia sissoo* Roxb.)

"This requires frequent watering for germination. In fact, the seeds germinate normally on flooded river banks, but will stand a considerable amount of heat and drought as well as slight cold." (*Dobbs.*)

33642. INDIGOFERA LINIFOLIA (L. f.) Retz.

See Nos. 32431 and 32782 for previous introductions.

33643. BACKHOUSIA CITRIODORA Mueller.

From Sunnybank, Queensland. Purchased from Mr. John Williams, Sunnybank Nursery. Received May 9, 1912.

"This is rapidly becoming extinct, owing to the wholesale destruction of timber for close settlement." (*Williams.*)

"A shrub or small tree native to southern Queensland, Australia, allied to Eucalyptus. The leaves yield 4 per cent of fragrant volatile oil, appearing to consist almost entirely of citral, the valuable constituent of all lemon oils. Appears promising for commercial culture." (*W. Van Fleet.*)

Distribution.—A tall shrub or small tree, found in the vicinity of Moreton Bay, in Queensland, Australia.

33644. AVENA SATIVA L. **Oat.**

From Hamilton East, New Zealand. Presented by Mr. P. McConnell, manager Runakura Experimental Farm, at the direction of the Director of Fields and Experiment Farms, Department of Agriculture, Commerce, and Tourists. Received May 8, 1912.

"*Rustproof oat.* This oat is a selection from the '*Argentina*' oat. Its gray color rather spoils its appearance, but should it remain rustproof it will be a great acquisition." (*McConnell.*)

33645. LARIX SIBIRICA Ledeb. **Larch.**

Collected in the southern Ural, Russia. Presented by Landrath Max von Sivers, Roemershof, Russia. Received May 7, 1912.

See Nos. 33317 and 33318 for previous introduction.

33646. CUMINUM CYMINUM L. **Cumin.**

From Valetta, Malta. Presented by Mr. James Oliver Laing, American consul. Received May 7, 1912.

"The seed of the cumin plant is raised in Malta, and most of the crop is exported. It has various uses. It forms the flavoring basis of several drinks, among them kümmel. Cumin seed is also used in the Netherlands and several places as a flavoring for cheese. In Syria and Egypt and probably in other Mohammedan countries it is used as a condiment.

33646--Continued.

"Cumin is of the parsley family and has fennel-like leaves. It is a cultivated crop in Malta, but I have seen it growing wild in Egypt and the hills of the Palestine hinterland.

"Altitude seems to affect the growth of the plant very little. In Malta it is grown a few feet above the sea and within a stone's throw of it, and it also grows wild in the highland valleys of Hindustan, 7,000 feet above the sea, and inland.

"The Malta cumin plant grows about 1 foot or a little less in height.

"Cumin is planted in Malta in January or February, and the crop is ready for the harvest in June or July. Weather conditions (rain and temperature) make a few weeks' difference occasionally in the times for planting and reaping. One crop a year is raised, and it must be planted each year. No attempt is made at cultivation while the crop is growing.

"When ready to be harvested the whole plant is pulled up by the roots by hand. This is easy, as the roots are readily broken and the soil is very porous and light. After pulling the plants from the ground they are beaten against a board or bar to knock the seeds loose.

"Seeds are winnowed by hand to clean them of chaff and dirt. They are then stored in sacks or simply piled in a dry place on a floor.

"The aromatic odor in one of these storehouses is so strong that it is almost impossible to enter when the door is first opened.

"Cumin seed will keep more than a year, but buyers always prefer the new crop because the fresh seeds are more aromatic.

"In the trade here the middleman system prevails. A contract is made by the farmer that the seeds are 97 per cent pure; that is, that they contain not more than 3 per cent of foreign matter.

"The commission merchant pays about $9 per 175 pounds." (*Laing.*)

33647. CICER ARIETINUM L. **Chick-pea.**

From Guadalajara, Mexico. Presented by Mr. Samuel E. Magill, American consul. Received April 27, 1912.

"*Garbanzo prieto* or *chico*. This is used only as food for animals. It is soaked for about 24 hours and softened for cattle, while hogs eat it whole." (*Magill.*)

See No. 31308 for notes regarding the growing of this crop.

33648 to 33654.

Seeds collected by Dr. B. T. Galloway, Chief, Bureau of Plant Industry, of this Department. Numbered May 10, 1912. Quoted notes by Dr. Galloway:

33648. CLEOME sp.

From Soekaboemi, Java.

"An herbaceous plant. Beautiful pink, geraniumlike flowers."

33649. SPOROBOLUS INDICUS (L.) R. Brown.

From Soekaboemi, Java.

"A good agricultural grass."

Distribution.—Throughout India, ascending to an elevation of 5,000 feet in the Himalayas, and generally distributed in warm countries.

33650. PINUS sp. **Pine.**

33651. ALLAMANDA sp.

From Selabatoe, Soekaboemi, Java.

"A large yellow-flowered shrub, resembling evening primrose."

33648 to 33654—Continued.

33652. ACACIA sp.

From Algeria.

"(March 15, 1911.) A bush with long, straight, slender, flexible branches, covered with formidable thorns. Used as street-tree protectors, branches being bound to tree trunks with wire. Also used as a hedge."

33653. CRATAEGUS sp. **Hawthorn.**

From Algeria. "(March, 1911.) A small semievergreen tree covered with bright-red fruit."

33654. AMPELODESMA BICOLOR (Poir.) Kunth.

From Hammam Rirha, Algeria.

"(March 15, 1911.) A grass very abundant on poor soil. Grows in bunches and has long tough leaves. May be the grass extensively gathered in this country for paper making."

Distribution.—The countries at the west end of the Mediterranean from Spain and Italy through the islands of Sardinia, Corsica, and Sicily to Morocco and Algiers.

33655. TERMINALIA CATAPPA L. (?) **Katappa.**

From Burringbar, New South Wales, Australia. Presented by Mr. B. Harrison. Received July 13, 1911. Numbered May 20, 1912.

Plants.

33657 to 33665. PRUNUS spp. **Cherry.**

From Station Novospaska, Syzran-Riazan R. R., Simbirsk Government, Russia. Presented by Mr. A. D. Voeikov. Received May 8 and 11, 1912.

Cuttings of the following; quoted names by Mr. Voeikov:

33657. PRUNUS FRUTICOSA × AVIUM.
(*Prunus chamaecerasus* Jacq.)

"*Kniazna Severa* (Princess of the North)."

33658. PRUNUS FRUTICOSA × CERASUS.
(*Prunus chamaecerasus* Jacq.)

"*Antonovka.*"

33659. PRUNUS FRUTICOSA Pallas.
(*Prunus chamaecerasus* Jacq.)

"*Kislakovka.*"

33660. PRUNUS FRUTICOSA × DOMESTICA (?)
(*Prunus chamaecerasus* Jacq.)

"*Dolgonsha.*"

33661. PRUNUS FRUTICOSA × CERASUS.
(*Prunus chamaecerasus* Jacq.)

"*Belotelaja.*"

33662. PRUNUS FRUTICOSA × CERASUS.
(*Prunus chamaecerasus* Jacq.)

"*Visloucha.*"

33663. PRUNUS FRUTICOSA Pallas.
(*Prunus chamaecerasus* Jacq.)

"*Steclarka.*"

33657 to 33665—Continued.

33664. PRUNUS FRUTICOSA × CERASUS.
(*Prunus chamaecerasus* Jacq.)

"Seedling of *Steclarka, No. 1.*"

33665. PRUNUS FRUTICOSA Pallas.
(*Prunus chamaecerasus* Jacq.)

"Seedling of *Steclarka, No. 2.*"

33666. ONOBRYCHIS CRISTATA Pomel. **Esparsette.**

From Erivan Government, Russia. Procured at Tiflis, Caucasus, in 1910, by Mr. Frank N. Meyer, agricultural explorer, for this Department. Received May 9, 1912.

Seeds.

Distribution.—The vicinity of Miliana in the northern part of Algeria.

33667. CHUSQUEA QUILA Kunth. **Quila.**

From Chile. Presented by Mr. D. S. Bullock, Lapeer, Mich., R. F. D. No. 5. Received May 11, 1912.

Root.

33668. FURCRAEA TUBEROSA (Miller) Aiton. **Cabulla.**

From Georgetown, Demerara, British Guiana. Presented by Mr. F. A. Stockdale, Assistant Director and Government Botanist, Botanic Gardens, Science and Agriculture Department. Received May 13, 1912.

A fiber plant generally cultivated in Bolivia, Venezuela, and Brazil; native country not known.

33669 and 33670. HOLCUS SORGHUM L. **Sorghum.**

(*Sorghum vulgare* Pers.)

From David, Panama. Presented by Mr. J. R. Lastra. Received May 9, 1912.

Seeds of the following:

33369. "This short, compact head is Guinea kafir. It is grown rather commonly in the West Indies and sparingly in Central America. In the English West Indies it is known as 'Guinea corn,' in the French West Indies as petit millet,' and in Honduras as 'Maysillo.'" (*Carleton R. Ball.*)

33670. "The lax panicle represents the variety *roxburghii* Hack., which grows in India and central Africa. Our shallu, with straw-colored glumes, is a native of India. Forms like the present, with brown or black glumes, are common in equatorial Africa, whence this doubtless came." (*Carleton R. Ball.*)

33671. NICOTIANA TABACUM L. **Tobacco.**

From Bagdad, Turkey. Presented by Mr. Emil Sauer, American consul. Received May 16, 1912.

Shiraz.

33672. ZEA MAYS L. **Corn.**

From Rockville, Md. Grown by Mr. J. M. Rankin, assistant farm superintendent, Yarrow Plant Introduction Field Station. Received May 16, 1912.

"Grown from S. P. I. No. 26958. This corn seems to me to be a very promising one for a locality where it has a longer growing season than it can get here near Washington, D. C. We matured only one ear, and that in 170 days.

"I would suggest that this corn be tested in Texas or California as a stock food and also as a table corn." (*Rankin.*)

33673. ERYTHRINA POEPPIGIANA (Walp.) O. F. Cook. Bucare.

(*Erythrina micropteryx* Poepp.)

From Porto Rico. Presented by Prof. S. M. Tracy, special agent of this Department at Biloxi, Miss. Received May 16, 1912.

"This is also known as 'palo de boyo.' A leguminous tree of 15 to 20 meters, beset with short conical spines; flowers red. Cultivated as a shade tree for coffee and reported from numerous localities in Porto Rico. It is a native of the lower Andes of Peru." (*Cook and Collins, Economic Plants of Porto Rico, 1903, p. 139.*)

33674 to 33688.

From Svalof, Sweden. Presented by the General Swedish Seed Co. Received May 13, 1912.

Seeds of the following:

33674 to 33681. BETA VULGARIS L. Mangold.

33674. *Yellow Eckendorfer A.*

33675. *Red Eckendorfer A.*

33676. *Barres Half Long A.*

33677. *Barres Half Long A.*

NOTE.—One of the two last-named varieties was designated in the list as "new stem," but there was nothing on the tags to show which one it was.

33678. *Barres Oval.*

33679. *Alfa.* Half sugar. Forage sugar beet.

33680. *Rubra.*

33681. *Golden Tankard.*

33682 to 33684. BRASSICA RAPA L. Turnip.

33682. *Bortfelder.*

33683. *Yellow Tankard.*

33684. *Ostersundom.*

33685 to 33687. BRASSICA CAMPESTRIS L. Swedish turnip.

33685. *Yellow Swedish Swede A.*

33686. *Yellow Swedish Swede A*, new stem.

33687. *Bangholm.*

33688. DAUCUS CAROTA L. Carrot.

Champion.

33689. MUSA sp. Banana.

From Manila, Philippine Islands. Presented by Mr. William S. Lyon. Received May 16, 1912.

Bumulan. "This is rated our second best in quality and by many accorded equal rank in quality with *Lacatan* and is in all respects a better carrier. I can vouch for it being a robust, healthy grower and, so far as I have observed, free from disease. The fruit is borne 100 to 120 to the bunch and is yellow, with streaks of green. It is not, however, a very attractive market fruit." (*Lyon.*)

33690 and 33691.

From Taochow, Kansu, western China, altitude 8,000 to 9,000 feet. Collected by Mr. W. Purdom. Presented by Prof. C. S. Sargent, Jamaica Plain, Mass. Received May 20, 1912.

33690 and 33691—Continued.

Seeds of the following:

33690. AVENA NUDA Hoejer. **Oat.**

Huskless.

33691. HORDEUM sp. **Barley.**

33692. ANTHEPHORA HERMAPHRODITA (L.) Kuntze.

(*Anthephora elegans* Schreb.)

From Quixada, Ceara, Brazil. Presented by Mr. Alberto Löfgren, Botanical Chief of the Inspectorate of Irrigation Works. Received May 21, 1912.

"One of the most renowned species in the dry region of Ceara. It does not stand the drought, but appears everywhere by the first rains and will probably produce a very good hay. The popular name is '*Capim mimoso.*'" (*Löfgren.*)

33693. STATICE MACROPHYLLA Willd.

From Puerto Orotava, Teneriffe. Presented by Dr. George V. Perez. Received May 21, 1912.

Distribution.—A partly woody perennial with flowers having a blue calyx and a white corolla, found in the Canary Islands.

33695 to 33709.

From Chile. Received through Mr. José D. Husbands, Limavida, via Molina, Chile, June, 1911. Numbered May 20, 1912.

Seeds of the following; quoted notes by Mr. Husbands:

33695. (Undetermined.)

"(No. 1167.) From Huaquen. Crimson mixed."

33696. (Undetermined.)

"(Nos. 1001 and 1002.)" Bulbs sent under S. P. I. No. 31570; see this number for remarks.

33697. LITHREA CAUSTICA (Mol.) Hook. and Arn.

(*Lithrea venenosa* Miers.)

"(No. 904.) An edible fruit, small, sweet, and good for unfermented chicha or cider. Although the tree is poisonous, the fruit is not.

33698. LITHREA CAUSTICA (Mol.) Hook. and Arn.

(*Lithrea venenosa* Miers.)

"(No. 920.) The country people esteem this fruit and make quantities of chicha in the same way as maqui (S. P. I. No. 26306), is used. It is healthful and agreeably refreshing. The foxes are fond of the fruit and sow the same when cast away with their dung; trappers look for the dung containing seeds in order to set their traps for this game."

33699. BERBERIS sp. **Barberry.**

"(No. 1290.) Those were sent me as '*Michae.*' I think they are of a hardy class of Berberis."

33700. (Undetermined.)

"(No. 978.) From the River Itata. A dwarf, ornamental tree. Leaves small. Bears an abundance of small seed fruit."

33701. (Undetermined.)

"(No. 864.) *Pöe*, the Indian name of an edible fruit of the Bromelia family, another sort of 'Chupon.' Grows on the sides of ravines, embankments, old trees, etc. Needs moisture."

33695 to 33709—Continued.

33702. Greigia sp.

"(No. 997.) The first I have seen growing in central Chile. Found very near the seacoast. Is a new variety."

33703. Cucumis melo L. **Muskmelon.**

"(No. 1185.) By Chilean custom, irrigated fields are rented to the dry farmers in lots of 1 cuadra (4 acres) to each renter for their 'chacra.' The rental price is a contracted number of sacks of beans. In these chacras are planted beans, potatoes, corn, squashes, aji, muskmelons, and watermelons. As squashes and melons have the natural faculties of aerohybridization these notes refer to this phenomena and give my opinion of the causes of the excellence created in Chilean melons.

"A hundred or more tenants have adjoining lands in which to sow and plant their food crops. No attention is given to the seeds planted, except squashes and melons, and such care as may be given is unknown to the persons themselves. When a squash is cooked or a melon eaten, if they are exceptionally good as to sweetness, flavor, productiveness, etc., the seeds are saved and are generally put into a bag hung for this purpose. This is repeated until sufficient mixed seed is accumulated. In this manner a large variety of all good selected seeds are sown the next year. Each tenant does the same thing, only with a different assortment. Therefore, each field is yearly sown with a hundred or more different collections of seeds, selected especially by taste and not by sight. Atoms of pollen are distributed great distances, and as no two melon patches are a greater distance than 60 meters apart, the aerial hybridizing commences and ends with the bloom. In this way every melon ripens with its seeds crossed by some other or others of equal, but perhaps different, merits. Every year new kinds of melons are created and these ignorant people are selectors by taste instead of scientific attainments. There are no people better able to judge of melon quality than these, as they live upon them during the season. As this breeding process of continually crossing improved varieties takes place year after year, it is not surprising that Chilean melons have reached a high degree of excellence.

"The seed sent was a production of this year, having flavor, quantity, and character of its own and was firm enough to be a good shipper. If its merits can be reproduced it is extra good, but as they are already crossed there is no security."

33704. Lycopersicon esculentum Miller. **Tomato.**

"(No. 1188.) A smooth yellow variety from Germany, grown in Chile for many years. Medium size, mild and fine flavored, prolific. By mild I mean it has little acid or of an agreeable kind."

33705. Eugenia temu Hook. and Arn.

"(No. 1189.) '*Temu.*' This is the first *temu* I have found bearing fruit, and I consider this an extra valuable find. The fruit is perfectly round, black, glossy, with a good quantity of juicy, wine-colored flesh. The flavor is aromatic and agreeable, something like wintergreen berries. It has no sort of repugnance. Its size for each tree is the same, that is, all the fruit on a tree is exactly alike, no large and no small ones. Some trees bear fruit a trifle larger than others; the smallest size is three-eighths of an inch in diameter, the largest half an inch. Each berry has but one seed, which readily separates from the flesh. It is prolific to excess, the tree being black with fruit.

"The glossy leaves are fragrant and evergreen; they fall, but not until after the new ones are formed. In bloom the tree is charmingly white with a mass of delightfully fragrant flowers which perfume the adjacent air for some dis-

33695 to 33709—Continued.

tance. The natural tree growth and form leaves nothing to be desired. Without any kind of improvement this may be added to your list of cultivated fruits. For breeding purposes it has great possibilities crossed with the large fruiting Myrtus of Japan and China.

"A clean, beautiful tree for adornment. It is white, with delightfully fragrant bloom. The wood and branches are extra-hard and durable in the ground and in constructions. The bark and leaves are very astringent and balsamic. Infusion of bark cures diarrhea, etc. It is also used externally to cure wounds on animals; the powdered leaves are also used for the same with good results. The bark, leaves, or wood are used for liver, kidneys, colds, internal pains, swellings, etc.—a standard remedy."

Distribution.—The vicinity of Valparaiso in Chile.

33706. SOLANUM sp. **Nightshade.**

"(No. 1190.) '*Tomatillo.*' This is an annual found only in the 'chacras' where beans, potatoes, corn, squashes, and melons are planted. It grows about 2 feet high and from 3 to 4 feet wide. The fruit grows in bunches under the leaves, which are of good size and dark green. The plant is fleshy, juicy, and broken easily. The fruit is green in color until it is fully mature, when it turns black. It is not edible. Apart from the plant growth, it is exactly like Burbank's wonderberry in every particular of appearance.

"It is a bush with vine habits, about 2 or 3 meters [6½ to 10 feet] high, loving the shade of the fences that it covers with large clusters of bloom—all shades of lilac and blue purple. The clusters are about 4 or 5 inches in diameter, very beautiful but scentless. The entire plant is medicinal and is a worthy substitute for quinia and quinine. It is employed with excellent results in typhoid and other malignant fevers, sickness caused by colds, chills, ague, etc. It is a powerful tonic and extremely bitter; a small bit of a green branch placed in a tumbler of water for but half a minute makes it very bitter. This is the way it is taken as medicine: Pieces of wood placed in the water which fowls or animals are to drink invigorate them and prevent disease. This plant should be carefully studied, as there is more in it than is known at present. Grows in dry poor soil or in the moist south in good soil."

33707. NICOTIANA TABACUM L. **Tobacco.**

"(No. 1193.)"

33708 and 33709. NICOTIANA LONGIFLORA Cavanilles.

"(No. 1194.) While this plant is cultivated for its flowers, it may have an industrial use for its gum. It is hairy; at the end of each is a tiny drop of oil or gum. This belongs to a class of hairy plants in Chile, from which exudes a liquid gum or sticky substance."

33708. "White, yellowish flowers."

33709. "Pink flowers."

Distribution.—A perennial, or in northern countries an annual, found in Chile and Argentine.

33711 and 33712. MEDICAGO spp.

From Chile. Received through Mr. José D. Husbands, Limavida, via Molina, Chile, June, 1911. Numbered May 20, 1912.

Seeds of the following; quoted notes by Mr. Husbands:

33711. MEDICAGO HISPIDA RETICULATA (Benth.) Urb.

"(No. 1180.) A dwarf bur clover which is late and new to me. This beardless variety spreads along the ground, and the stems are so interwoven with each

33711 and 33712—Continued.

other as to completely cover it with a dense growth of animal food especially suitable for sheep. The leaves rise above the ground from 2 to 3 inches. Feeding upon this will not destroy the plant like it does the larger varieties, as it does not die when the leaves are removed, but sprouts anew. The larger varieties dry up after seeding, more or less like peas. They are not climbers, but lean against some support and then support each other, rising from a height of from 20 inches to 4 feet, according to the kind. They grow quickly from self-sown seed in any poor soil; in fertile, moist land they thrive wonderfully."

33712. MEDICAGO HISPIDA DENTICULATA (Willd.) Urban.

"(No. 1182.) Plant dwarf, bearded with soft hairs. The description for the preceding will serve for this also."

33713. RUELLIA TUBEROSA L.

From Barbados. Presented by Mr. Patrick O'Mara, New York, N. Y. Received May 23, 1912.

"These seeds were received from one of our customers in Barbados. She does not give any botanical names; merely says that it is commonly called 'many roots' and that it bears beautiful mauve flowers. She further states that the roots are a cure for indigestion. Steep two roots or tubers in a small cup of boiling water for a few minutes, pour off and drink with a little salt, twice daily." (O'Mara.)

Distribution.—In the ravines in Texas and southward through Mexico and Central America to Peru and Guiana, and in the West Indies.

33714. TRIFOLIUM sp. **Clover.**

From near Helenendorf, Caucasus, Russia. Received through Mr. Frank N. Meyer, agricultural explorer, May 3, 1910. Numbered May 24, 1912.

"(No. 760, April 5, 1910.) A species of clover, apparently perennial, growing along banks and on dry places." (*Meyer.*)

33715. ASPARAGUS FILICINUS Hamilton. **Asparagus.**

From the Kong Tong Mountains, China. Presented by Mr. Philip Nelson, Camas, Wash. Received May 20, 1912.

Seed.

33716. PIMENTA ACRIS (Swartz) Kostel. **Bayberry.**

From Port Louis, Mauritius. Presented by Mr. G. Regnard. Received May 25, 1912.

"A myrtaceous tree 45 to 50 feet high, the straight, rather long trunk 15 to 24 inches in diameter. Furnishes a moderately hard and heavy wood, fine and compact in texture. The sapwood is very light red with darker lines, while the heart is brownish red, brown, or on account of the knots, almost black. It is susceptible of a very high polish. Specific gravity, 0.909. It is one of the best and most valued woods of these countries, very strong and durable, suitable for carpenters and cabinetwork, and it is exported to some extent. The bark is rough and ash colored and peels after the manner of the sycamore.

"From the dried leaves of this tree is obtained by distillation with water an essential oil, called 'bay oil' or 'oil of bay', the most important ingredient of bay rum. Only a pint and a half of oil is said to be required for the medication of 100 gallons of rum. The latter should be of good quality and strength. If below 18 or 19 proof, it will not properly incorporate the oil. Large quantities of dried leaves of this species are imported from the West Indies, notably from the island of Dominica. They are

33716—Continued.

generally put up in bales of about 200 pounds weight. It is not known that any leaves have been shipped from Porto Rico, but in 1895, 95 gallons of bay oil, valued at $1,390, and 12,544 gallons of bay rum, valued at $6,414, were exported. The trees occur in all parts of the island and are said to be abundant in some districts on the south side.

"In the fresh condition the leaves of this tree have the taste and odor of lemon, whence the propriety of the name 'limoncillo,' or little lemon. Although more common in Porto Rico as a shrub, this species is said to grow to a height of 35 or 40 feet and to attain a diameter of a foot or more; the wood is light-colored, mottled, very hard, and heavy." (*Cook and Collins, Economic Plants of Porto Rico, 1903, pp. 74 and 75.*)

33718. MYRTUS sp. (?)

From Burringbar, New South Wales, Australia. Presented by Mr. B. Harrison. Received July 31, 1911. Numbered June 10, 1912.

"Blackfellow's 'lollies' or 'sweets.' Fruit small, mottled; flavor sweet, spicy." (*Harrison.*)

33719. GALEGA OFFICINALIS L. **Goat's-rue.**

From Paris, France. Purchased from Vilmorin Andrieux & Co. Received June 28, 1912.

See No. 25481 for previous introduction.

33721 to 33735. ASPARAGUS spp. **Asparagus.**

From Kew, England. Presented by Mr. Arthur W. Hill, Royal Botanic Gardens. Received May 28, 1912.

Seeds of the following:

33721. ASPARAGUS SARMENTOSUS L.

Distribution.—A woody climber found in South Africa from the Kalahari region southward to the Cape.

33722. ASPARAGUS UMBELLATUS Link.

Distribution.—Found in the Canary Islands.

Plants of the following:

33723. ASPARAGUS AFRICANUS Lam.

33724. ASPARAGUS DREPANOPHYLLUS Welw.

33725. ASPARAGUS FALCATUS L.

33726. ASPARAGUS MADAGASCARIENSIS Baker.

33727. ASPARAGUS MYRIOCLADUS Baker.

Distribution.—A suberect, slightly woody perennial found in the vicinity of Inanda in Natal, South Africa.

33728. ASPARAGUS PLUMOSUS Baker.

33729. ASPARAGUS PLUMOSUS Baker.

Variety *tenuissimus.*

33730. ASPARAGUS RACEMOSUS Willd.

Distribution.—Throughout tropical and subtropical India, ascending to an elevation of 4,000 feet in the Himalayas, and in tropical Africa and Australia.

33731. ASPARAGUS RETROFRACTUS L.

Variety *arboreus.*

Distribution.—The central and coast regions of South Africa.

33721 to 33735—Continued.

33732. ASPARAGUS SARMENTOSUS L.

33733. ASPARAGUS TRICHOPHYLLUS Bunge.

Distribution.—The Provinces of Chihli and Shantung in China and in central Siberia.

33734. ASPARAGUS UMBELLATUS Link.

33735. ASPARAGUS sp.

"No. 350-99."

33736. TRIFOLIUM PRATENSE L. **Red clover.**

From Trent, Austria. Presented by Prof. Edward F. Bassi, Consiglio Provinciale d' Agricultura. Received May 31, 1912.

"Seed of a very valuable variety of clover, the so-called *Giant* or *Spodone*, which has been introduced of late from Italy and is very highly spoken of by all the farmers who have made experiments with it. I have had it tried myself as chief of the department for the improvement of crops in our Province and can safely say it wonderfully realized our most sanguine expectations, although grown in the most widely different conditions of soil and climate. Its yield may be put down at 25 to 30 per cent more than any other variety." (*Bassi.*)

33737 and 33738. GOSSYPIUM spp. **Cotton.**

From Coimbatore, India. Presented by Dr. C. A. Barber, Madras Government Botanist, Agricultural College. Received May 25, 1912.

Seeds of the following:

33737. *Karunganni.* From Koilpatti.

33738. *Tellapatti.* From Nandyal.

33739. HOLCUS SORGHUM L. **Sorghum.**

(*Sorghum vulgare* Pers.)

From Sennaar Province, Sudan Government. Presented by Mr. R. Hewison, Assistant Director of Agriculture, Department of Agriculture and Forests, Khartum. Received May 29, 1912.

"Seed obtained from wild plants."

33740 and 33741. BUNCHOSIA COSTARICENSIS Rose.

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, Museo Nacional. Received June 3, 1912.

"Cuttings of a small tree, bearing very good fruit and large pubescent leaves; prolific. Grows from cuttings, but root cuttings are said to be best." (*Wercklé.*)

33740. White.

33741. Red.

33743 and 33744. CASTILLA GUATEMALENSIS Pittier. **Central American rubber.**

From Guatemala. Presented by Mr. Edward Reed, American consular agent; Livingston. Received May 31, 1912.

33743 and 33744—Continued.

Seeds of the following:

33743.

33744. "These seeds I obtained from near Panzos,100 miles from here; they are from a very large tree, which is an exceptionally copious bleeder." (*Reed.*)

Distribution.—The Provinces of Yucatan and Tabasco in southern Mexico, and in Guatemala.

33745 to 33748. ANNONA spp.

From Colima, Colima, about 150 miles south of Guadalajara, Mexico. Presented by Mr. Samuel E. Magill, American consul, Guadalajara. Received June 1, 1912.

Seeds of the following:

33745. ANNONA RETICULATA L. **Custard-apple.**

"Anona de Colima."

33746. ANNONA SQUAMOSA L. **Sweetsop.**

33747 and **33748.** ANNONA RETICULATA L. **Custard-apple.**

33749. ABELMOSCHUS ESCULENTUS (L.) Moench. **Okra.**

(*Hibiscus esculentus* L.)

From Avery Island, La. Presented by Mr. E. A. McIlhenny. Received May 31, 1912.

"These seeds are from a species of okra a friend of ours sent us from Egypt six or seven years ago. By careful selection we have produced a variety of okra which is unexcelled for table purposes. It is an early bearer and has a thicker flesh and is more tender than any of the commercial okra which we have tried." (*McIlhenny.*)

33750. AMPELODESMA BICOLOR (Poir.) Kunth.

From Algiers, Algeria. Presented by Dr. L. Trabut. Received June 5, 1912.

See No. 33654 for previous introduction.

Seed.

33751. PISTACIA VERA L. **Pistache.**

From Bronte, Sicily. Presented by Mr. Charles Beek. Received June 5, 1912.

See No. 33441 for previous introduction.

Seed.

33752. TRITICUM AESTIVUM L. **Wheat.**

(*Triticum vulgare* Vill.)

From Florence, Italy. Procured by Mr. Leo J. Kenna, American consul. Received June 11, 1912.

Pistoria. "This appears to be very similar to the Galgalos, a wheat which is rather commonly grown in the Panhandle of Texas and adjacent territory." (*Carleton R. Ball.*)

33753. DIOSPYROS KAKI L. f. **Persimmon.**

From Guo Iong, Kutien, Fukien, China. Presented by Dr. Thomas H. Coole, Superintendent, Wiley General Hospital of the Methodist Episcopal Church, Kutien. Received June 6, 1912.

"Square persimmon." (*Coole.*)

33754 to 33759.

From Albano, Stockholm, Sweden. Presented by Dr. Veit Wittrock, Director, Botanic Garden. Received May 31, 1912.

Seeds of the following:

33754. ASPERUGO PROCUMBENS L.

Distribution.—An annual herb found throughout Europe and northern Asia, and in northern Africa.

33755. CARAGANA ARBORESCENS Lam. **Siberian pea tree**

Variety *pendula*.

33756. CARAGANA PYGMAEA (L.) DC.

Distribution.—A low undershrub with reddish-yellow flowers, found in central Asia from Afghanistan eastward to Tibet and Dauria.

33757. BERBERIS CRETICA L. **Barberry.**

33758. BERBERIS SERRATA Koehne. **Barberry.**

33759. BERBERIS THUNBERGII DC. **Barberry.**

Variety *maximowiczi*.

33760. MEDICAGO SATIVA L. **Alfalfa.**

From Tangier, Morocco, Africa. Presented by Mr. Maxwell Blake, American consul general. Received May 31, 1912.

33761. CITRUS LIMONUM Risso. **Lemon.**

From Malta, Maltese Islands. Presented by Mr. James Oliver Laing, American consul, through the kindness of the Secretary of the Malta Horticultural Society. Received June 8, 1912.

"This new fruit is the result of experiments undertaken by the government expert here in the gardens of San Antonio and is called the San Antonio lemon.

"The specimen sent and the lemon from which the seeds were taken were chosen as exhibition fruits to be shown at the yearly fair of the Malta Horticultural Society and are therefore not only a new variety but the best specimens of it.

"The new fruit was labeled as follows at the fair: 'A seedling from a flat-shaped variety at San Antonio gardens and exhibited now for the first time.'" (*Laing.*)

33762. COCOS YATAY Martius. **Yatay.**

From Haedo, a suburb of Buenos Aires, Argentina. Presented by Mr. C. F. Mead, Buenos Aires. Received June 8, 1912.

"Found in southern Brazil, Paraguay, and northern Argentina, but these seeds are from a tree grown by Vicente Peluffo & Co., at their proving grounds near Haedo, which speaks well for its frost-resisting qualities. This coco grows to a height of about 5 meters and is very similar in looks and fruit to the date palm. Fruit in looks is similar to a small crab apple, except that it lacks luster; comestible and tastes something like a green pineapple." (*Mead.*)

33763 to 33776.

From Edinburgh, Scotland. Presented by Dr. Isaac Bayley Balfour, Director, Royal Botanic Garden. Received June 8, 1912.

Seed of the following:

33763. ARISTOLOCHIA ROTUNDA L. **Birthwort.**

Distribution.—Southern Europe, extending from southern Switzerland and northern Italy eastward to the vicinity of Trieste in Austria.

33763 to 33776—Continued.

33764. Carissa bispinosa (L.) Desf. **Carissa.**

(*Carissa arduina* Lam.)

33765. Clematis grewiaeflora DC. **Clematis.**

Distribution.—A woody climber found on the slopes of the Himalayas at an altitude of 3,000 to 5,000 feet, from Kumaon to Bhutan in northern India.

33766. Clematis microphylla DC. **Clematis.**

Distribution.—On river banks and along the coasts of Queensland, New South Wales, Victoria, and South Australia, and in Tasmania.

33767. Clerodendrum fallax Lindl.

Distribution.—Considered to be a native of Java.

33768. Clerodendrum thomsonae Balf. f.

Distribution.—A climbing shrub with cymes of white flowers found in the delta of the Niger River in Upper Guinea, Africa.

33769. Cornus capitata Wall.

Distribution.—A small tree found at an altitude of 4,000 to 7,000 feet on the lower Himalayas from Kumaon to Bhutan in northern India.

33770. Elaeagnus umbellata Thunb.

Distribution.—Southern Asia, extending from Afghanistan eastward through northern India and northern China to Japan.

33771. Elaeodendron australe Vent. **Couraivo.**

Distribution.—A small tree with red berries found along streams in Queensland and New South Wales in Australia.

33772. Enkianthus himalaicus Hook. f. and Thomson.

Distribution.—A tall shrub or small tree with orange-red flowers in umbels found at an altitude of 8,000 to 11,000 feet on the slopes of the Himalayas in Nepal, Sikkim, and Bhutan in northern India.

33773. Euonymus yedoensis Koehne.

Described from cultivated plants and apparently only known in cultivation, but considered to be of Japanese origin.

33774. Spiraea chamaedryfolia L.

Distribution.—Southern Europe and central Asia, extending from Hungary eastward through southern Siberia to the Amur region.

33775. × Spiraea foxii Zabel.

Considered to be a hybrid between *S. japonica* and *S. corymbosa*.

33776. Viburnum burejaeticum Regel and Herd.

Distribution.—A tall shrub found in Manchuria and the western part of the Province of Hupeh in China.

33777. Caryophyllus jambos (L.) Stokes. **Rose-apple.**

(*Eugenia jambos* L.)

From Puerto Plata, Dominican Republic. Presented by Mr. Charles M. Hathaway, jr., American consul. Received June 13, 1912.

"A fruit known as '*pomarosa*' (called by the English-speaking people 'rose-apple')." (*Hathaway.*)

Seed.

See No. 27571 for previous introduction.

33778. ERIOBOTRYA JAPONICA (Thunb.) Lindl. Loquat.

From Naples, Italy. Presented by Dr. Gustav Eisen, California Academy of Science, San Francisco, Cal. Received June 13, 1912.

"The large loquat. Pear shaped, about 2 inches long." (*Eisen.*)

33779. CAJAN INDICUM Spreng. Pigeon-pea.

From La Noria, Mazatlan, Sinaloa, Mexico. Presented by Don Nat. O. y Osuna. Received June 10, 1912.

"'Tree bean,' which gives good yearly crops. This bean can be sown one seed for each plant at 6 or 8 feet apart." (*Osuna.*)

33780. ASPARAGUS ALBUS L. Asparagus.

From near Byamor, Teneriffe. Presented by Dr. George V. Perez, Puerto Orotava. Received June 3, 1912.

See No. 33143 for previous introduction.

33781 and 33782. CASSIA GRANDIS L. f.

From Cuba. Presented by Roberto L. Luáces, agricultural engineer, Camaguey, Cuba. Received June 15, 1912.

"The '*Cauandonga*' tree. The fruits are much used through the province of Oriente (Santiago de Cuba) as food and for the making of something like chocolate. The smell of the fruit is bad, very bad, but the taste is not. The local varietal names are misnomers, for the translations are 'with bone' and 'without bone'; this last is the best. The tree is pretty and could be grown as a shade tree in the South, and some application may be found for the fruit. I do not know the botanical name and only that the Con Hueso class (S. P. I. No. 33781) is called in the other parts of this island '*Canafistula.*'" (*Luáces.*)

"A small wing-leaved tree of the bean family, producing abundance of yellow flowers, native of the East Indies, and now common in most tropical countries. It produces a smooth cylindrical pod twice the thickness of the finger and sometimes 2 feet in length. The interior is divided into numerous transverse portions, each containing a seed embedded in pulp of a sweet taste, which forms an important laxative medicine. The leaves, as also those of *Cassia alata*, are used as a cure for ringworm." (*John Smith, Dictionary of Popular Names of Economic Plants*, 1882.)

33781. Variety *Con Hueso* (with bone).
33782. Variety *Sin Hueso* (without bone).

33783. OLEA FOVEOLATA E. Meyer. Olive.

From East London, Cape Colony. Presented by Mr. Charles P. Lounsbury, Chief, Division of Entomology of the Department of Agriculture of the Union of South Africa, Pretoria. Received June 15, 1912.

See No. 25846 for previous introduction.

33784 and 33785.

From Costa Rica. Presented by Mr. Carlos Werklé, National Museum, San Jose. Received June 17, 1912.

Seeds of the following; quoted notes by Mr. Werklé:

33784. CASTILLA NICOYENSIS O. F. Cook. **Central American rubber.**

"Variety from Rio Grande, El Coyolar."

Distribution.—A tree found in the Nicoya Peninsula on the western coast of Costa Rica.

33784 and 33785—Continued.

33785. PASSIFLORA sp. **Passion fruit.**

"A species which has all the aspect of smilax."

33786 and 33787. CYMBOPOGON spp.

From Trivandrum, Travancore, southern India. Presented by Mr. N. Kunjan Pillai, Director of Agriculture, Travancore, southern India. Received April 1, 1912. Numbered June 20, 1912.

Roots of the following; quoted notes by Mr. Pillai:

33786. CYMBOPOGON CITRATUS (DC.) Stapf. **Citronella grass.**
(*Andropogon citratus* DC.)

This species and the next have been listed in previous numbers of these inventories as *Andropogon citratus* and *A. nardus*, respectively, but recent students of grasses, and especially Stapf, who has published a monograph of the oil grasses, recognize the two as belonging to the distinct genus Cymbopogon.

"A grass yielding oil in a fairly large quantity. It is locally known as *Sambarapulla*, being used for flavoring buttermilk. This grass is more common in Ceylon and along the east coast. In the interior of Travancore it occurs not in abundance. There is reason to believe that the grass came from Ceylon, because near Cape Comorin and up to a place called Arakkanikulam the grass occurs in abundance. Another peculiarity is that, while I have never seen this grass in flower in Ceylon either under cultivation or in a native condition, it flowers freely amidst the bowlders of Arakkanikulam on either side of the main road and also near the cape in Maruthuvamala. This I think is due to its transport into a hotter locality. The bowlders get heated and the grass lying between gets 'forced,' as plants are in the hothouses in other countries. When I saw the grass the last time it was getting a disease corresponding to the black rust of cholam (maize). The pest was just beginning. The plants which I have selected are free. This grass is mixed with other andropogons and distilled. The industry is in the hands of the uneducated and no sorting of varieties is done, because knowledge is absent."

33787. CYMBOPOGON NARDUS (L.) Rendle. **Citronella grass.**
(*Andropogon nardus* L.)

"A grass very common all over Travancore, except at great elevations and very near the seacoast. In soft alluvial loam and under careful cultivation this grass grows to a height of 6 or 8 feet. This grass can be very easily identified by a light magenta tinge from the bottom upward. The spikes are short and the leaves are narrow. It is locally known as *Chukku-Nari-Pullu* (the grass smelling like *Zinziber officinale*).

"In Travancore I do not know of many places where this grass is taken up for cultivation. It is collected from the jungle by women getting between 4 and 5 chuckrums (2 to 3 annas) a day. A monster vessel of copper is installed as a primitive vat. In one day 1½ bottles of oil could be obtained. The prices vary from 3 to 6 rupees for a bottle of 24 ounces.

"Mr. A. F. Sanderson, the then Deputy Conservator of Forests, and Mr. Miller, a manager of the Vellanad Plumbago Mines, made an attempt to open an estate of oil-grass. They went on for some time unmindful of the outside talk and collected a fair quantity of oil, but the business was dropped because it was taken up only as a side industry of test. Other beginnings were made which were but short-lived. One hundredweight of leaves is said to yield about 3 ounces of oil. The pure oil is thin, colorless, and strong, with a citronlike flavor.

33786 and 33787—Continued.

"The average exportation of citronella from Colombo is about 40,000 pounds, valued at £8,000, or about 4 shillings and 1 penny per pound. It is largely used to give the peculiar flavor to what is known as 'honey soap' and in the making of perfumes. In Travancore the propagation of this grass is left to nature, no care of any kind whatever being given. It is treated purely as a natural product of the jungle. It is even looked down upon as a glutton upon soil food, deserving, if possible, extermination and cremation. In Ceylon the citronella grass is raised from seed and planted like guinea grass and will give two or three crops a year. When fit to cut, the grass is carried to a large boiler and the oil is distilled. It is estimated to give about three dozen bottles to the acre, but the demand is limited and the price fluctuates from 2 shillings and 6 pence a bottle to 4 shillings and 6 pence. At the latter price it pays handsomely, while at the former it little more than covers the expenditures. A still capable of turning out a dozen bottles a day costs £300. .

"A decoction of the leaves is used, it is said, to purify blood. It is also given in cases of cough and used in steam baths for colds. Externally, it is applied to remove rheumatic pains, in which case it is said to equal the oil of the famous *Samadera indica* of the sandy regions of North Travancore. The oil is said to be good for cholera. For children it is a good tonic. It is also a stimulant and diaphoretic."

33788. CITRUS AURANTIUM SINENSIS L. **Orange.**

From the Atlas Mountains, Algeria. Presented by Dr. L. Trabut, Algiers. Received June 20, 1912.

"A late orange from the Atlas Mountains. Cultivated in the valleys of the mountains. Fruit excellent; grown from seed by the natives." (*Trabut.*)

33789 and 33790. PRUNUS sp.

From St. Petersburg, Russia. Received through Mr. Frank N. Meyer, agricultural explorer, for this Department, April 2, 1912.

These seeds were picked out of S. P. I. No. 33312. See this number for remarks.

33791. CHRYSOBALANUS ICACO L. **Icaco.**

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, National Museum. Received June 19, 1912.

"A much improved, superior variety; black." (*Wercklé.*)

See No. 32402 for previous introduction.

33792. PANAX QUINQUEFOLIUM L. **Ginseng.**

(*Aralia quinquefolia* Decne. and Planch.)

From Seoul, Chosen (Korea). Presented by Miss Katherine Wambold, care of Severance Hospital. Received April 25, 1912. Numbered June 10, 1912.

Distribution.—Throughout the eastern part of the United States from Canada southward to the mountains of Georgia, and in Manchuria, Chosen (Korea), and Japan.

33793. RUBUS HAWAIENSIS A. Gray. **Akala.**

From the Kau District, Island of Hawaii. Presented by Mr. Ralph S. Hosmer, Superintendent of Forestry, Honolulu. Received June 24, 1912.

"The native raspberry, akala. This species is quite generally distributed through this Territory between the elevations of 3,500 and 5,000 feet It is a tall-growing

33793—Continued.

shrub, the canes frequently reaching a height of 12 to 15 or more feet. The fruit is large, from an inch to an inch and a half in length and about an inch in diameter. The flavor is a rather sharp, but to me a pleasant acid. It has always seemed to me that this raspberry might with advantage be crossed with some cultivated variety." (*Hosmer.*)

33794 and 33795.

From Seychelles Islands. Presented by Mr. P. Rivaly Dupont, curator, Botanical Station. Received June 7, 1912.

Seeds of the following:

33794. MUCUNA GIGANTEA (Willd.) DC.

33795. VIGNA LUTEA (Swartz) A. Gray.
(*Vigna retusa* Walp.)

33796. (Undetermined.)

From Montevideo, Uruguay. Presented by Mr. Frederic W. Goding, American consul. Received June 25, 1912.

"Red quebracho, the wood of which forms a most valuable timber and also furnishes tannin in large quantities."

33797 to 33799. GOSSYPIUM spp. **Cotton.**

From China. Presented by Rev. Hugh W. White, American Presbyterian Mission, Yentcheng, Kiangsu, China. Received June 20, 1912.

Seeds of the following; quoted notes by Rev. Mr. White:

This is seed from last year's crop. All three varieties are grown as field crops. The Chinese cotton is generally recognized as being inferior to American. Whether they may have some superiority in the matter of adaptability to poorer soils, I am unable to say. My friends here say they do not raise cotton on land that will bring anything else. So far as I know, these are native varieties. The fiber is used for spinning in the hand fashion. The native cloth is all woven of this cotton. The plants on good soil are said to grow hip high, but what I have seen is usually not much over the knees. The Hsuchoufu varieties have yellow and white flowers mixed. The Yentcheng variety is said to be only white. Both have the purple center."

33797. GOSSYPIUM HIRSUTUM L.

From Yentcheng.

33798. GOSSYPIUM NANKING Meyen.

From Hsuchoufu. "Long staple."

33799. GOSSYPIUM NANKING Meyen.

From Hsuchoufu. "Short staple."

33800 to 33911.

From Chile. Received through Mr. José D. Husbands, Limavida, Chile. Received 1911. Numbered June 25, 1912.

Seeds of the following; quoted notes by Mr. Husbands unless otherwise noted:

33800. ASTERISCIUM CHILENSE Cham. and Schlecht.

"(No. 709.) '*Anisillo.*' '*Muchu.*' Refreshing febrifuge for debility of the stomach, fragrantly aromatic. Plant gives a great quantity of seeds and might give an industrial oil, extract, or essence."

Distribution.—In dry, sandy places in the vicinity of Talcahuano, central Chile.

33800 to 33911—Continued.

33801. FAGELIA sp.

(*Calceolaria* sp.)

"(No. 698.) This is a perennial variety with a large plant growth, all of which is fragrant and extra sticky. It may be valuable for extracting a fragrant gum or oil useful for perfumers. It is covered by a mass of lemon-yellow flowers. These plants seek the sides of ravines, embankments, cuts, perpendicular rocks, ditches, dry canals, rockeries, anywhere where conditions seem unfavorable and moisture scarce. Growing in a few atoms of dry earth or drooping from the sides of perpendicular or solid rocks it is a charming sight. Seed sown in the sides of the western canyons would decorate them beyond belief."

33802 to 33806. DIOSCOREA spp. **Yam.**

"'*Huanque.*' Decorative vines whose tubers are edible. There is a great variety of these in Chile. Some are very dainty; others have large bunches of seed pods that glisten like gold and silver."

33802. "(No. 621.) Mixed. A dainty vine, good for table or window decoration."

33803. "(No. 622.) Dainty vine."

33804. "(No. 623.)"

33805. "(No. 980.) From Volcano Antuco."

33806. "(No. 1088.) From the seacoast of Aconcagua. 'Seeds are differently distinct.'"

33807. LINUM sp.

"(No. 768.) '*Retamilla.*' Indian name '*Nancolahuen.*' A small beautiful plant, with straight, upright stems, growing 6 to 8 inches high; bears an abundance of beautiful, bright-yellow flowers. Is suitable for a border or bedding; needs no trimming It grows dry in the uplands in any dry, arid soil. Is astringent and much used for indigestion, flatulence, and diseases of the stomach."

33808. ECCREMOCARPUS SCABER Ruiz and Pavon.

"(No. 632.) A beautiful perennial vine, with crimson and yellow flowers shaped like a gunstock. Called commonly '*Sultana.*'"

Distribution.—A half-shrubby climber common along fences and in fields in Chile.

33809. EUPATORIUM SALVIA Colla.

"(No. 654.) '*Salvia.*' A perennial bush with a profusion of lavender flowers that perfume the air to a great distance. About 5 feet high; evergreen. Early bloomer; worth cultivation."

Distribution.—In the woods in the vicinity of Valparaiso in Chile.

33810. GNAPHALIUM sp.

"(No. 828.) '*Vira-vira.*' '*Yerba de la vide.*' Has a volatile oil. Is sudorific, febrifuge, expectorant, etc. Applied with good results in catarrh, bronchitis, and injections to cure wounds, etc."

33811. PHYSALIS PUBESCENS L. **Ground-cherry.**

"(No. 650.) '*Capuchinos.*' '*Capuli.*' '*Tomate de cascara.*' Biennial and perennial without frost; flowers, light canary yellow; center, lavender and brown. Fruits all the season until frost, when the leaves fall, but the plant survives for the next season. An edible and healthful fruit. Plant is ornamental and might produce a perennial tomato by hybridization."

Distribution.—In sandy soil from Pennsylvania to California and southward through Central America and South America to Chile; also in India.

33800 to 33911—Continued.

33812. SENECIO sp.

"(No. 669.) '*Siete camisas*' (seven shirts). A big-leaved, hollow, quick-growing, showy, and extremely ornamental small tree with immense bunches of yellow aromatic flowers about 2 feet long by 15 inches wide, making it visible from one mountain to another. It is a beautiful tree for lawn, park, or garden decoration. The leaves and flowers of this plant are tonic, emmenagogue, etc. The plant pounded or the juice mixed with oil or grease cures wounds and allays inflammation caused by broken bones, etc."

33813. PASSIFLORA PINNATISTIPULA Cavanilles. **Passion fruit.**
(*Tacsonia pinnatistipula* Juss.)

"(No. 1300.) '*Tumbo.*' '*Granadilla de Chile.*'"

Distribution.—The vicinity of Valparaiso in Chile.

33814. PASSIFLORA PINNATISTIPULA Cavanilles. **Passion fruit.**
(*Tacsonia pinnatistipula* Juss.)

"(No. 1080.) '*Granadilla de Chile,*' '*Tumbo.*' From Aconcagua seacoast. The wild fruiting variety of Chile. An elegant vine with pink flowers and long stems to which the light-yellow fruit hangs. Is somewhat smaller than the Peruvian pasionaria, but is of the same flavor. Fruit, 2 to 2½ inches in diameter. Will not stand frost."

33815. TREVOA TRINERVIA Gill. and Hook.

"(No. 758.) '*Treru.*' '*Trebu.*' A good treelet for live fences if it is cut back when young and large wood growth prevented. It makes a mass of thorns on small wood so dense that nothing can pass it. In the roads where carts and traffic have pruned the plants they become a splendid fence that defies destruction by any class of rough usage, soil, extreme drought, or perpetual dry conditions. The wood is very hard and fibrous and never grows larger than one's wrist. It makes extra-good fuel. The clusters of fragrant white flowers and the leaves are used as soap for washing clothes, etc."

Distribution.—Slopes of the mountains in Chile at an elevation of 2,000 to 2,500 feet.

33816. TREVOA TRINERVIA Gill. and Hook.

"(No. 1163.) '*Treru.*' From the province of Valparaiso."

"A branching shrub with horizontal spines and compressed branches. A decoction of the wood is used for wounds and ulcers." (*W. E. Safford.*)

33817 and 33818. (Undetermined.)

"A curious lemon-colored lily with brown striping; flowers about ½ inch in diameter. Each plant is distinctly different, but the flowers are the same. I think it is perennial."

33817. "(No. 624.)"

33818. "(No. 625.)"

33819 to 33822. ALSTROEMERIA LIGTU Falck.

"A large assortment of colors; in fact, no two plants are exactly alike in color combination."

Distribution.—Along streams in the vicinity of Concepcion in Chile.

33819. "(No. 660.) This may be called the large variety. The plant is about 24 to 36 inches in height and has an immense bunch of bloom on each stem all in flower at the same time."

33800 to 33911—Continued.

33819 to 33822—Continued.

33820. "(No. 661.) This may be called the dwarf variety. The plants grow from 6 to 15 inches high, flowers the same kind and size as No. 660 (S. P. I. No. 33819), but somewhat less in number and of different colors."

33821. "(No. 876.) *Linto.* A different strain from Nos. 660 and 661 (S. P. I. Nos. 33819 and 33820). The tubers of all *Linto* are very valuable for making the famous Chuno or arrowroot, a valuable food for infants, the sick, and convalescing. It is an especially good food for sufferers with inflammation of the stomach or digestive canals."

33822. "(No. 1136.) *Linto.* From the seacoast near Illoca, province of Curico. Bears a pale-lemon and dark-yellow flower; extra handsome."

33823. SCHINUS HUIGAN Molina.

(*Schinus dependens* Ortega.)

"(No. 705.) A treelet actually black with seed fruit; ornamental."

See No. 25798 for previous introduction.

33824 to 33827. CEREUS QUISCO Gay. **Quisco.**

33824. "(No. 1073.) A tiny, round, dwarf variety about 2 inches in diameter, round as a ball; bears large crimson flowers and small fruit. Comes from the seacoast."

33825. "(No. 1074.) From inland central Chile, near the river Mataquito. A very tall variety with few stalks that grow perfectly straight. Bears an immense semidouble, white, fragrant flower. Fruit, edible."

33826. "(No. 1075.) From Cordillera Maritima, central Chile. A fruiting class with large pink flowers."

33827. "(No. 1076.) From the 'Quebrada de los Perros' (Ravine of the Dogs), central Chile."

33828. MAIHUENIA POEPPIGII (Otto) Philippi. **Maihuen.**

(*Pereskia poeppigii* Salm-Dyck.)

"No. 986.) '*Maihuen*,' '*Herba del Gunaco.*' From the Volcano Antuco."

33829 to 33832. CEREUS QUISCO Gay. **Quisco.**

"Different dwarf classes which grow in the crevices of the rocks in the summits of hills and mountains below the snow line. Have pink, red, and crimson flowers. Pot-bellied, melon shaped."

33829. "(No. 656.) Echinocactus. Dwarf, melon-shaped. Dark pink flowers."

33830. "(No. 657. Echinocactus. Dwarf; crimson-flowered paula. Like a pot-bellied melon."

33831. "(No. 658.) Dwarf. Flowers not seen. May be mixed."

33832. "(No. 659.) Dwarf quisco. An extra-rare variety with beautiful cream-colored flowers with pink tips."

33833. ACACIA CAVENIA (Mol.) Bert. **"Espino.**

"(No. 1011.) From the 'Quebrada de los Perros' (Ravine of the Dogs). This tree has a compact growth, with no part of the limbs naked of foliage. The spines are shorter and more generally distributed. When green they are not soft like some, but as sharp and hard as steel. Getting these seeds with care, I cut my hands in many places. This also has somewhat less growth than others.

33800 to 33911—Continued.

Having studied the subject of live fences, I have concluded that this tree will serve admirably and be extremely valuable, for the following reasons in part:

"The tree is long lived and grows quickly. If cut back it forms a dense mass that light will not pass. The wood is extremely hard and elastic when alive: no person or animal can break through. The thorns are so sharp that they are used to extract slivers in preference to a needle. Is extremely ornamental. Grows in any dry soil or sand. A seedling plant a very few weeks old, 6 inches high, has a taproot growth of 18 inches or more. It seeks the moisture at any depth and having reached it the first season is quite independent of surface conditions. If soaked until sprouted, it will grow anywhere in any dry, poor, arid clay or sandy soil, especially if sown in the late fall and the winter rains are allowed to force the root growth. In the spring the taproot has then reached permanent moisture. Sheep are very fond of the seed and new growth; goats and horned cattle also, although the latter do not eat the seeds (it is the pod they eat). The seeds are undigested and being soaked in the stomach readily sprout; in this manner they are naturally sown. When a field has been plowed and cleared of brush for sowing wheat, etc., the espinos sprout anew very quickly.

"Sheep and goats will leave a field having ample pasture and by preference occupy these bare plowed lands solely to eat the new growth of this tree; sheep stand upon their hind legs and stretch their necks to reach the branches of this tree, while goats jump into them or mount upon the backs of their fellows to reach new growth. This feeding from the tree does no damage in any way; it makes the tree more beautiful and increases the food growth. This is the most valuable tree on a Chile farm. A branch can be used to stop up a fox or hog hole or break in the fence; it also serves for lasting fence posts. Branches tied together are used as drags to sow surface seeds, such as alfalfa; this pulverizes the land and covers the seed properly. For charcoal fuel it is the best.

"If pruned as a seedling it forms a most beautiful, round, ornamental, thorned tree. The flowers appear before the leaves; all the branch wood is covered with a dark yellow bloom which perfumes the surrounding air and gives the appearance of a tree covered with yellow snow. The taproot of a plant a month old will be from 12 to 18 inches long. It thrives in the dry lowlands and its taproot finds the moisture, no matter how deep. Its charcoal is the most durable and hottest fuel known and leaves an abundance of long-lasting coals.

"The wood is extra hard, flexible, and nonrotting in the air or in the ground. It is used for fence posts, spokes of the heaviest carts and coaches, teeth of mill cogwheels, and is extra useful for weaving into three wires for a fence that nothing can pass. The new growth is very flexible and easily bent into wires; when dry it is rigid. This fence lasts about five years, then the wood is removed for fuel and new wood again placed. The old way, when the wood is abundant, is not to employ wire but to pile the wood and branches against each other; as the small branches dry and break off new ones are added on top. The heart never rots. If an adult tree is headed back it grows in a beautiful, dense ball and always retains this shape; if cut it quickly sprouts again. Its inner bark is useful to tie up anything. The bark, quintral, and moss are valuable dyes. If cut it grows again before it is wanted. The bark boiled in water is used to cure bruises and ulcers. The seeds are a digestive and a stimulant."

33834. ACACIA CAVENIA (Mol.) Bert. **"Espino."**

"(No. 1162.) '*Espino.*' From the Province of Valparaiso."

See S. P. I. No. 33833 for description.

33800 to 33911—Continued.

33835. Azara gilliesii Hook. and Arn.

"(No. 1083.) '*Lilen.*' From the seacoast, Aconcagua."

33836. Epilobium sp.

"(No. 1105.) '*Chinchin.*' From Chiloe."

33837. Azara serrata Ruiz and Pavon.

"(No. 946.) '*Corcoleu.*'"

"This is a superb tree of moderate growth, has dark extra-glossy leaves and white-seeded berries. When in flower it is rarely beautiful; the entire tree is covered with lacelike flowers, orange yellow and very fragrant. The seeds seem to play no part with the flowers, which are fastened to the wood, while the seeds are in drooping clusters."

33838 to 33840. Acacia spp.

"'*Aromo.*' Three different varieties, of merit as ornamental trees of great beauty."

33838. Acacia longifolia (Andr.) Willd.

"(No. 947.)"

33839. Acacia sp.

"(No. 948.)"

33840. Acacia melanoxylon R. Brown.

"(No. 949.)"

Distribution.—A large tree with very hard black wood, found in New South Wales, Victoria, and South Australia, and in Tasmania.

33841. Azara sp.

"(No. 1004.) '*Aromo.*' From Concepcion. Yellow flowered; a handsome ornamental."

33842. Baccharis confertifolia Colla.

(*Baccharis chilquilla* DC.)

"(No. 912.) '*Chilquilla.*'"

Distribution.—An erect shrub found in copses and woods in the vicinity of Valparaiso, Chile.

33843. Berberis chilensis Gill. **Barberry.**

"(No. 1053.) '*Michay.*' From the vicinity of the Antuco Volcano. A small variety with numerous leaves, and spines about three-fourths of an inch long upon all sides. Grows about 4 feet high."

33844 to 33848. Berberis spp. **Barberry.**

33844. "(No. 1054.) '*Michay.*' From the River 'Paugue,' central Chile. A distinct class about 6 feet high, bearing an abundance of large fruits which hang in large bunches."

33845. "(No. 1055.) '*Michay.*' From dry, central Chile. Grows about 2 feet high."

33846. "(No. 1056.) '*Michay.*' From central Chile. Grows about 2 feet high."

33847. "(No. 951.) '*Michay.*' From near the seacoast."

33848. "(No. 844.) '*Michay.*' Has an edible fruit."

33849. Berberis chilensis Gill. **Barberry.**

"(No. 856.) '*Calafate,*' also called '*michay*' or '*michai,*' as all Berberis are known by these common names. Seeds taken from plants from Chiloe and Llanquihue."

33800 to 33911—Continued.

33850. Berberis chilensis Gill. **Barberry.**

"(No. 1330.) '*Calafate.*' A new strain having blue fruit that is extra-sweet."

33851. Boquila trifoliata (DC.) Decaisne.

"(No. 1331.) '*Pilpil voqui.*' A rare variety."

See No. 26309 for description.

33852. Embothrium coccineum Forst. **Notra.**

"(No. 1291.) '*Tiaca.*' '*Quiaca.*' A beautiful bush with white flowers; famous for its flexibility."

33853. Caldcluvia paniculata (Cav.) Don.

"(No. 1336.) '*Tiaca.*' A flexible wood very much like hickory; different from No. 1291 (S. P. I. No. 33852)."

33854. Helenium glaucum (Cav.) Stuntz.

(*Cephalophora glauca* Cavanilles, Icones, vol. 6. p. 80, pl. 599, 1801.)

Seeds of this asteraceous plant from Chile were received under the name *Cephalophora glauca* Cav. Since Cephalophora is now considered merely a section of the genus Helenium, it is necessary to use the name *Helenium glaucum*, which seems never to have been published.

"(No. 914.) '*Poquil.*' "

"Used medicinally and for dyeing." (*W. E. Safford.*)

33855. Colletia spinosissima J. F. Gmelin.

(*Colletia spinosa* Lam.)

"(No. 1067.) '*Junco blanco.*' From near the River Itata. A valuable plant for fences and for honey, of which it makes a most delicious kind of its own, unequaled. It also has the advantage of growing dry in loose and drifting sands that will not maintain any other plant. It might make a desert productive."

33856. Colletia spinosissima J. F. Gmelin.

(*Colletia spinosa* Lam.)

"(No. 1068.) '*Junco blanco.*'. From the Antuco."

See No. 33855 for description.

33857 to 33859. Sophora macrocarpa Smith.

33857. "(No. 1016.) '*Mayu.*' From the Volcano Antuco."

33858. "(No. 1017). '*Mayu.*' From near the Volcano Antuco."

33859. "(No. 916.) '*Mayu.*' Blooms in the spring, the flowers hanging like earrings in drooping bunches."

33860. (Undetermined.)

"(No. 1282.) '*Mayu del Monte.*' A most beautiful flowering bush; equal to any of its class or character in cultivation. Flowers face upright in big clusters like a giant hydrangea. Blooms in the fall."

33861 to 33863. Sophora tetraptera J. Miller.

33861. "(No. 1019.) '*Pelu.*' From the cordilleras of the Volcano Antuco."

33862. "(No. 1020.) '*Pelu.*' Another variety that grows farther north on the seacoast."

33863. "(No. 838.) '*Pelu.*' "

33800 to 33911—Continued.

33864. EMBOTHRIUM COCCINEUM Forst. **Notra.**

"(No. 853.) '*Ciruelilla.*' '*Notra.*' An elegant, crimson-flowered, ornamental tree."

"A beautiful tree, 30 feet high. Wood used for furniture." (*W. E. Safford.*)

33865. ENARGEA RADICANS (R. and P.) Mueller.

(*Luzuriaga radicans* R. and P.)

"(No. 1332.) '*Esparto.*' '*Quilinejo.*' Fruit called '*Coral.*' A delightfully ornamental vine that clings closely to the bark of trees, stumps, and logs and adorns them with a dainty grace without hiding their natural forms. The light-green leaves, white or crimson flowers, with crimson or yellow fruit at the same time, gives a floral decoration of rare elegance. The vine is used by the Indians for making ropes, brooms, brushes, and baskets, some of which are of great beauty. This plant is worth consideration as an industrial and ornamental plant of value."

33866. ENARGEA RADICANS (R. and P.) Mueller.

(*Luzuriaga radicans* R. and P.)

"(No. 851.) '*Quilinejo.*' '*Esparto.*' Fruit is called '*Coral*' and '*Coral del monte.*' "

See No. 33865 for description.

33867. HEPETIS sp.

"(No. 911.) '*Cardoncillo.*' "

33868. ERYNGIUM ROSTRATUM Cavanilles.

"(No. 908.) '*Cardilla.*' "

"A glabrous plant with thick roots found in the province of Valparaiso to Concepcion and Malleco; also Polynesia and Australia. Used as an antidote for the bite of the very poisonous spider, *Latrodectus formidabilis.*" (*W. E. Safford.*)

33869. EUCRYPHIA CORDIFOLIA Cav. **Muermo.**

"(No. 1333.) '*Ulmo.*' '*Muermo.*' From the interior altitude of the cordillera."

"A magnificent evergreen tree which whitens the forest with its blossoms, The flowers yield an abundance of honey. The wood is excellent and withstands moisture. Perfectly hardy." (*W. E. Safford.*)

33870. EUCRYPHIA CORDIFOLIA Cav. **Muermo.**

"(No. 1292.) '*Ulma.*' '*Muermo.*' From the coast lowlands of Chiloe."

See No. 33869 for description.

33871. FLAVERIA BIDENTIS (L.) Robinson.

(*Ethulia bidentis* L., Mantissa, p. 110, 1767.)

(*Milleria contrayerba* Cav., Icones, vol. 1, p. 2, 1791.)

(*Flaveria contrayerba* (Cav.) Persoon, Synopsis, vol. 2, p. 489, 1807).

Seeds of this asteraceous biennial from Chile were received under the name *Flaveria contrayerba* (Cav.) Persoon. The earliest name to be applied to the plant, however, is *Ethulia bidentis* L., as shown by Robinson (Proc. Amer. Acad., vol. 43, p. 42, 1907).

"(No. 1006.) '*Contra Yerba.*' "

Distribution.—Along roads and in cultivated fields in Peru and Chile.

33872. FLOURENSIA THURIFERA (Mol.) DC. **Maravilla**

(*Helianthus thurifer* Molina.)

"(No. 1135.) '*Maravilla del Campo.*' From the Aconcagua seacoast."

33800 to 33911—Continued.

"A shrub with more or less deciduous foliage, abounding in an aromatic resin, which in early times was used for incense. Flowers bright golden yellow, in the month of October lighting up the hills of the provinces of Aconcagua, Valparaiso, and Santiago." (*W. E. Safford.*)

Distribution.—A shrubby perennial found in sterile soil in the vicinities of Coquimbo and Valparaiso in Chile.

33873. GALIUM CHILENSE Hook. f.
(*Galium chonoense* Hook. f.)

"(No. 892.) '*Relbun.*' From the interior of the province of Valdivia. A red-dye plant."

33874. GOCHNATIA RIGIDA Don.

"(No. 1089.) '*Mira.*' From the seacoast of Aconcagua."

Distribution.—A stiff shrub found on the slopes of the Andes in the vicinity of Valparaiso in Chile, and in the province of Mendoza in Argentina.

33875. GREIGIA LANDBECKI (Lechl.) Philippi.

"(No. 1334.) '*Chupones.*' '*Nochas.*' This is the spineless variety whose fibrous leaves are used for making ropes, baskets, etc."

33876. GREIGIA LANDBECKI (Lechl.) Philippi.

"(No. 852.) '*Chupon.*' '*Nocha.*' This is from Llanquihue, south of Chiloe, and may not be the seedless Valdivia variety."

33877. LARDIZABALA BITERNATA Ruiz and Pavon.

"(No. 894.) '*Coquil.*'"

"A climber, with long, tough stems suitable for cordage." (*W. E. Safford.*)

"A beautiful vine with edible fruit; the flowers are not large but strange in form and of rare color. The vine is very useful and serves when wet to tie bales, etc. That of central Chile only reaches a thickness of about half an inch, as they are cut frequently; in the south I have seen them several inches in diameter."

33878. LAURELIA SEMPERVIRENS (Ruiz and Pav.) Tul.
(*Laurelia aromatica* Juss.)

"(No. 846.) '*Laurel.*' Medicinal."

"A handsome tree of southern Chile belonging to the Monimiaceæ. The wood is durable and is never bored by insects. Much used for flooring. It would be fine for planting on our northwest coast." (*W. E. Safford.*)

33879. LAURELIA SEMPERVIRENS (Ruiz and Pav.) Tul.
(*Laurelia aromatica* Juss.)

"(No. 1134.) '*Laurel.*' From the Antuco Volcano."

See No. 33878 for description.

33880. LITHREA CAUSTICA (Mol.) Hook. and Arn.
(*Lithrea venenosa* Miers.)

"(No. 1000.) '*Litre.*' From near the seacoast, Maule. A new dwarf, round-growing, ornamental evergreen; grows beehive shaped. The covering of these seeds contains grease or wax."

33881. LITHREA CAUSTICA (Mol.) Hook. and Arn.
(*Lithrea venenosa* Miers.)

"(No. 1085.) '*Molle.*' From the seacoast of Aconcagua."

See No. 33698 for description.

33800 to 33911—Continued.

33882. (Undetermined.)

"(No. 862.) '*Romecillo.*' '*Romerillo.*' From Chiloe."

33883. TRICONDYLUS FERRUGINEUS (Cav.) Salisb.

(*Lomatia ferruginea* R. Brown.)

"(No. 1296.) '*Huinque.*' Has few leaves, but these are large and elegant. Bears large bunches of yellow flowers. The plant needs moisture. A decoction made from it is used for Lepidias."

Distribution.—A shrub found on inundated flats along the coast of Chile.

33884. MADIA SATIVA Molina. **Madia.**

"(No. 1005.) '*Melosa.*'"

"An annual. Seeds oily, edible. The ancient Chileans, according to Molina, derived oil from the seeds, probably very much like that from the seeds of Helianthus." (*W. E. Safford.*)

33885. MAYTENUS BOARIA Molina.

"(No. 1010.) '*Maiten.*' From the River Itata." See S. P. I. Nos. 3394 and 26322 for description.

33886. (Undetermined.)

"(No. 885.) '*Yerba negra.*' '*Dichillo.*' From the interior of the province of Valdivia. A bush with yellow flowers like chrysanthemums.

33887. MYRCEUGENIA FERNANDEZIANA (Hook. and Arn.) Johow.

(*Myrtus fernandeziana* Hook. and Arn.)

"(No. 837.) '*Luma.*' Wood is extra hard, elastic, and everlasting."

33888 to 33896. MYRTUS spp.

"Different varieties; you will find plants showing some distinct and separate characteristic in almost each separate locality of the Cordilleras."

33888. "(No. 1036.) '*Arrayan.*' From Antuco Volcano. A special class growing 15 feet high and bearing enormous quantities of fruit."

33889. "(No. 1037.) '*Arrayan.*' From near Antuco."

33890. "(No. 1039.) '*Arrayan.*' From near Antuco Volcano. A large, fine-flavored variety."

33891. "(No. 1040.) '*Arrayan.*' From near Antuco."

33892. "(No. 1041.) '*Arrayan.*' From near Antuco."

33893. "(No. 1038.) '*Arrayan.*' From the Itata River. A small treelet with an abundance of extra-large fruit, fine flavored. This is a distinct plant and the only one of its kind seen."

33894. "(No. 1168.) '*Arrayan.*' From the province of Valparaiso. Fine flavored, large fruit."

33895. "(No. 1170.) '*Arrayan.*' From Llanquihue. Has no fruit. Seeds like *Myrtus temu.*"

33896. "(No. 1042.) '*Arrayan.*' From central Chile."

33897. MYRTUS MELI Philippi.

"(No. 1169.) This has all the merits of No. 837 (S. P. I. No. 33887), but grows larger, up to 18 or 20 meters high. It commands double the price of other timbers for industrial purposes. I do not know whether or not the fruit is edible. The plant is uncommon."

Distribution.—A tree found in the dense woods in the province of Valdivia in southern Chile.

33800 to 33911—Continued.

33898. PANICUM URVILLIANUM Kunth.

"(No. 1009.) From Quivolgo. A pasture grass that animals eat. Grows in the sands on the seashore."

33899. RIBES sp.

"(No. 933.) '*Parrilla.*' An edible fruit of the gooseberry type."

33900. PROSOPIS STROMBULIFERA (Lam.) Bentham.

"(No. 1281.) '*Retorton.*' Grows in the altitude of the innermost Cordilleras near the Argentine line, from the province of Talca to the southern part of Atacama. It is a legume of the Mimosa family, unusual, as it is the only one of its kind having tight, spiral, cylindrical seed pods which when unwound show the seeds held in a fibrous trough. This specimen is from the province of Coquimbo. Sometimes it is called 'Espino chico.' It is a white-wooded treelet, growing from 4 to 6 feet high, with stiff but flexible branches, and with leaves very much like the espino (S. P. I. No. 33833), but smaller. At the base of each leaf are two small thorns. It is very ornamental and often cultivated in gardens."

33901. PUYA CHILENSIS Molina.

"(No. 983.) '*Chagual.*' From Antuco Volcano. A dwarf shrub growing about 3½ feet high, with a stem 1½ inches thick. Bears lilac flowers."

33902. PUYA CHILENSIS Molina.

"(No. 1084.) '*Chanqual.*' From the seacoast, Aconcagua. A good variety. Dwarf. Flowers not seen. Young shoots excellent, refreshing food and good for making candied sweets."

33903. PUYA CHILENSIS Molina.

"(No. 897.) '*Cordon.*' This plant is highly medicinal. The flower stems are used for stopping bottles; it does not cork them, as the air passes through the porous wood. It is fine for razor strops, but is quickly worm-eaten."

33904. SOPHORA TETRAPTERA J. Miller. **Pelu.**

"(No. 1328.) '*Pilo.*' This is not the bush '*Pilopilo,*' but a tree whose wood is hard and tough. When matured it is excellent for spokes."

33905. UGNI MOLINAE (Barn.) Turcz.

(*Myrtus molinae* Barn.)

"(No. 842.) '*Murta.*' The best wild fruit in Chile."

"Fruit delicious. Sometimes called Chilean guava. Will grow in Oregon." (*W. E. Safford.*)

33906. UGNI MOLINAE (Barn.) Turcz.

(*Myrtus molinae* Barn.)

"(No. 1286.) '*Murta.*' From Chiloe and Llanquihue. A fine edible fruit that grows upon handsome bushes. Fruit claret colored, hardy, ripens very late in the fall."

33907 to 33909. MYRTUS spp.

"These are from the interior of Llanquihue in the Indian country."

33907. "(No. 1287.) Color of this fruit is pink; hardy; very prolific; rare."

33908. "(No. 1288.) The same generally speaking as No. 1287 (S. P. I. No. 33907). Fruit is dark red; very prolific and hardy; rare."

33909. "(No. 1289.) The same, generally speaking, as Nos. 1287 and 1288 (S. P. I. Nos. 33907 and 33908). This bush is much smaller than the others; it is hardy and rare. The fruit is white."

33800 to 33911—Continued.

33910. Ribes sp.

"(No. 890.) Wild black currant."

33911. Lathyrus sp.

"(No. 881.) '*Aloeryilla.*' From Valdivia. Wild flowering peas."

33912. Macadamia ternifolia F. Mueller. Queensland nut.

From Brisbane, Australia. Purchased from Mr. Thomas H. Wood. Received at the Plant Introduction Field Station, Chico, Cal., July 2, 1912.

See No. 18382 for description.

Seed.

33913 to 34038.

From Buenos Aires, Argentina. Presented by Señor Carlos Thays, Director, Botanic Garden. Received May 18, 1912.

Seeds of the following:

33913. Acacia moniliformis Grisebach. **Tusca.**

Distribution.—A low, bushy, yellow-flowered shrub found in the vicinity of Tucuman in Argentina. The young pods are used as fodder for cattle.

33914. Adolia buxifolia (Reiss.) Kuntze.
(*Scutia buxifolia* Reiss.)

Distribution.—A spiny shrub belonging to the buckthorn family found in central Brazil and northern Argentina.

33915. Aeschynomene histrix Poir.

Distribution.—An herbaceous perennial legume found in the vicinity of Cayenne in Guiana.

33916. Allophylus edulis (St. Hil.) Radlk.
(*Schmidelia edulis* St. Hil.)

Distribution.—A small tree or tall shrub found in the woods in the vicinities of Santa Cruz and Corumba in Brazil.

33917. Amerimnon nigrum (Vell.) Kuntze. **Rosewood.**
(*Dalbergia nigra* Allem.)

Distribution.—A large tree, probably the source of rosewood, found in the province of Minas Geraes in Brazil.

33918. Anneslia parviflora (Hook. and Arn.) Britton.
(*Calliandra bicolor* Benth.)

Distribution.—A leguminous shrub or low tree found in Uruguay.

33919. Anneslia tweedii (Benth.) Lindm.
(*Calliandra tweedii* Benth.)

Distribution.—A leguminous shrub or small tree with very hard wood found in the mountains of Uruguay. The flowers furnish reddish and black dyes.

33920. Araujia sericifera Brot.

33921. Argyreia megapotamica Grisebach.

Distribution.—A large-flowered climber belonging to the morning-glory family, found in the southern part of Brazil and in Uruguay and Argentina.

33922. Astronium balansae Engler.

Distribution.—A tree with hard wood, which is much used in northern Argentina and Paraguay.

33913 to 34038—Continued.

33923. Atriplex cristata H. B. K.

Distribution.—An annual herb belonging to the pigweed family found in tropical America and naturalized on the sandy coasts of Florida.

33924. Baryxylum dubium (Spreng.) Pierre.
(*Peltophorum vogelianum* Walp.)

Distribution.—A large forest tree belonging to the Cæsalpiniaceæ found in the province of Rio de Janeiro and Minas Geraes in Brazil.

33925. Beloperone plumbaginifolia (Jacq.) Nees.

Distribution.—A shrubby vine belonging to the Acanthaceæ found in deep woods on the slopes of the mountains in Brazil.

33926. Berberis ruscifolia Persoon. **Barberry.**

Distribution.—A yellow-flowered, spiny-leaved shrub found in the vicinity of Buenos Aires in Argentina.

33927. Bixa orellana L. **Arnotto.**

Distribution.—A small evergreen tree which furnishes the arnotto dye; generally cultivated in the Tropics.

33928. Saloa hieronymi (Urban) Stuntz.
(*Blumenbachia hieronymi* Urban, Jahrbuch K. Botanisches Garten, Berlin, vol. 3, p. 249, 1884.)

Seeds of this loasaceous plant from Argentina were received under the name *Blumenbachia hieronymi.* The generic name Blumenbachia was first used by Koeler in 1802 (Descriptio graminum, p. 28) for a genus of grasses, based on *Holcus haleppensis*, thus invalidating its use in 1825 by Schrader (Commentationes K. Gesellschaft Wissenschaft Gottingen, vol. 6, p. 92) for the present loasaceous genus. As no other name has been given to this genus, the name Saloa, anagram of Loasa, to which the plant was formerly assigned, is here adopted as the generic name, the type being *Saloa insignis* (*Blumenbachia insignis* Schrad.)

33929. Bradburya brasiliana (L.) Kuntze.
(*Centrosema brasilianum* Benth.)

Distribution.—An herbaceous leguminous vine found in the provinces of Para and Bahia in Brazil.

33930. Bromelia sp.

Seeds of this plant were received under the name *Bromelia caraguata*, but as yet the place of publication of this species has not been found.

The fiber plant from whose fiber is made the celebrated ñandutí lace.

33931. Brunsfelsia mutabilis Poiteau.

Distribution.—A solanaceous shrub or small tree, only known under cultivation.

33932. Byttneria cordata Lamarck.
(*Buettneria cordata* Lam.)

Distribution.—A shrub belonging to the Sterculiaceæ, found in the vicinity of Lima in Peru.

33933. Caesalpinia melanocarpa Grisebach.

A stout, bushy-topped, leguminous tree. The fruits contain considerable tannin, and the hard, almost black, wood is used for building wagons and for framing houses.

Distribution.—Found in the woods in the vicinity of Tucuman in Argentina.

33913 to 34038—Continued.

33934. CAMPOMANESIA sp.

Seeds of this species were received under the name *Campomanesia sellowiana*, but so far the place of publication of this species has not been found.

33935. CASSIA BICAPSULARIS L.

Distribution.—A shrub or small tree, with light, soft wood and medicinal bark, found from San Luis Potosi in Mexico southward through Central and South America to southern Brazil and Chile.

33936. CASSIA CORYMBOSA Lamarck.

Distribution.—The vicinity of Buenos Aires in Argentina.

33937. CASSIA OCCIDENTALIS L.

See No. 3059 for description.

33938. CELTIS TALA Gill.

Distribution.—A tall, thorny shrub or small tree, suitable for hedges and street planting, found in the lower part of the valley of the La Plata in Argentina and Uruguay.

33939. CERBERA THEVETIA L.

(*Thevetia nereifolia* Juss.)

See No. 33563 for previous introduction.

33940. CHAMISSOMNEIA LUZULAEFOLIA (Less.) Kuntze.

(*Schlechtendalia luzulaefolia* Less.)

Distribution.—A handsome erect perennial composite found in central Brazil and in the vicinity of Montevideo in Uruguay.

33941. CHORISIA INSIGNIS H. B. K. **Samohú.**

Distribution.—A tree with a swollen trunk found along the banks of the Amazon in Brazil. It has large white, yellowish, or reddish, lily-shaped flowers, and like other plants of the Bombacaceæ, abundant fiber on the seeds.

33942. CHORISIA SPECIOSA St. Hil. **Arvore de paina.**

Distribution.—A tree whose seeds have only a short fiber; found in the provinces of Minas Geraes and Sao Paulo in southern Brazil.

33943. CITHAREXYLUM BARBINERVE Cham.

Distribution.—A low tree, belonging to the verbena family, found in the valley of the La Plata in Brazil.

33944. COCOS CAMPESTRIS Martius. **Palm.**

Distribution.—An edible-fruited palm found in the provinces of Minas Geraes and Sao Paulo in Brazil.

33945. COLLIGUAJA INTEGERRIMA Gillies and Hooker.

Distribution.—A low, euphorbiaceous shrub found in the valleys of the Andes in the province of Mendoza in Argentina and in Chile.

33946. COMBRETUM FRUTICOSUM (Loefling) Stuntz.

(*Gaura fruticosa* Loefling, Iter Hispanicum, p. 248, 1758.)
(*Combretum laxum* Loefling, Reise, p. 320, 1766.)
(*C. micropetalum* DC., Prodromus, vol. 3, p. 19, 1828.)
(*C. loeflingii* Eichler, in Martius, Flora Brasiliensis, vol. 14, pt. 2, p. 110, 1867.)

Seeds of this South American shrub were received under the name *Combretum micropetalum* DC. Eichler, however, in 1867 in his revision of the Brazilian species of the genus Combretum gives the plant the name *C. loeflingii*, based on the *C. laxum* of the 1766 edition of Loefling's travels, not of Jacquin

33913 to 34038—Continued.

(Enumeratio Plantarum Caribæum, p. 19, 1760), quite disregarding the fact that Loefling had previously published the name *Gaura fruticosa* for this species. In accordance with nomenclatorial usage it is necessary to adopt the earliest specific name, *fruticosa*.

Distribution.—An ornamental climbing shrub with orange and green flowers; found in Brazil.

33947. Conyza ageratoides DC.

Distribution.—A composite herb found in meadows and cultivated fields in the island of Madagascar.

33948. Conyza chilensis Spreng.

Distribution.—A biennial yellow-flowered herb belonging to the aster family; found in Chile.

33949. Cordia corymbosa (L.) G. Don.
(*Cordia monosperma* R. and S.)

Distribution.—A shrub found in the West Indies and in tropical South America.

33950. Crinodendron patagua Molina. **Chequehue.**
(*Tricuspidaria dependens* R. and P.)

See No. 25489 for description.

33951. Cupania vernalis St. Hil.

Distribution.—A large timber tree found in the province of Rio Grande do Sul in southern Brazil.

33952. Dioscorea bonariensis Tenore.

Distribution.—A climbing vine found in the vicinity of Buenos Aires in Argentina.

33953. Dolichandra cynanchoides Cham.
(*Macfaydenia dolichandra* Benth.)

Distribution.—A shrubby vine with trumpet-shaped, reddish purple flowers found in the extratropical forests of Brazil.

33954. Echinodorus grandiflorus (C. and S.) Micheli.
(*Echinodorus floribundus* Seub.)

Distribution.—An herbaceous perennial found in stagnant and slow-moving waters along the coast of South America from Rio de Janeiro to Uruguay.

33955. Enterolobium contortisiliquum (Vell.) Morong.
(*Enterolobium timbouva* Mart.)

Distribution.—A large leguminous timber tree found in Paraguay. It is often planted as a street tree, the wood is much used in carpentry, and the fruits, called "orejas de negro," are used to remove spots from linen.

33956. Erythrina crista-galli L.

See No. 32051 for previous introduction.

33957. Erythrina sp.

33958. Eugenia mato Grisebach.

Distribution.—A tree with edible fruits, forming the principal part of the forests in the vicinity of Tucuman in Argentina.

33959. Eugenia pungens Berg.

Distribution.—An edible-fruited tree with hard wood found in the province of Sao Paulo in Brazil.

33913 to 34038—Continued.

33960. EXCOECARIA MARGINATA (Klotsch) Grisebach.

Distribution.—A shrub or small tree found on hill slopes and along streams in the province of Goyas in Brazil.

33961. EXOGONIUM PURGA (Wendr.) Bentham. **Jalap.**
(*Ipomoea purga* Hayne.)

"A Mexican climbing plant, with salver-shaped purplish flowers, which furnishes the true jalap tubers of commerce. These are roundish, of variable size, the largest being about as large as an orange, and of a dark color. They owe their well-known purgative properties to their resinous ingredients, and hence worm-eaten tubers are more valued than sound ones, as the insects eat the farinaceous and woody portions of the tuber and leave the resin." (*M. T. Masters, in Treasury of Botany.*)

Distribution.—Found in the mountains of Mexico and southward to Peru.

33962. FAGARA HYEMALIS (St. Hil.) Engler.
(*Zanthoxylum hyemale* St. Hil.)

Distribution.—A small tree whose timber is suitable for furniture; found in the southern provinces of Brazil and in Paraguay and Argentina.

33963. FICUS SUBTRIPLINERVIS Martius.

Distribution.—The woods in the vicinity of Cuyaba in the province of Matto Grosso in Brazil.

33964. FLOURENSIA CAMPESTRIS Grisebach.

Distribution.—On the plains in the province of Cordoba in Argentina.

33965. GLEDITSIA AMORPHOIDES (Griseb.) Taub.
(*Garugandra amorphoides* Griseb.)

A spiny tree with reddish, somewhat hard wood, much used for building. The ripe fruit, called "*Canbanambi*" in the Chaco, gives off an odor which causes sneezing, due to the presence of saponin.

33966. GOMPHRENA ROSEA Grisebach.

Distribution.—An herbaceous perennial belonging to the amaranth family; found on rocky hillsides in the province of Cordoba in Argentina.

33967. GOTHOFREDA COERULEA (Don) Kuntze.
(*Oxypetalum coeruleum* Decne.)

Distribution.—A blue-flowered climbing shrub belonging to the milkweed family, found in Argentina.

33968. GOTHOFREDA SOLANOIDES (Hook. and Arn.) Kuntze.
(*Oxypetalum solanoides* Hook. and Arn.)

Distribution.—A climbing shrub found on the plains in the province of Buenos Aires in Argentina.

33969. GOUANIA CORYLIFOLIA Raddi.

Distribution.—A climbing shrub belonging to the buckthorn family; found in the province of Rio de Janeiro in Brazil.

33970. GOURLIEA DECORTICANS Gillies. **Chañar.**

A shrubby legume, often forming a small tree, having fleshy pods with a single seed and a small, yellow, pealike flower. The pulp of the fleshy pods is used to flavor wines in Buenos Aires and is a favorite fruit of the Argentinos.

Distribution.—Found in the provinces of Cordoba and Mendoza in Argentina.

33971. GUETTARDA URUGUENSIS Cham. and Schlecht.

Distribution.—A tall shrub belonging to the Rubiaceæ; found in copses and forests along river banks in the central provinces of Brazil.

33913 to 34038—Continued.

33972. Heteropteris umbellata St. Hilaire.

Distribution.—A shrubby climber belonging to the Malpighiaceæ; found in moist soil in the province of Entre Rios in Brazil.

33973. Jacobinia coccinea (Aubl.) Hiern.

Distribution.—A shrubby perennial with scarlet flowers found along streams in the mountains in French Guiana and in northern Brazil.

33974. Jodina rhombifolia Hooker and Arnott.

(*Iodina rhombifolia* Hook. and Arn.)

Distribution.—A shrub or low tree belonging to the sandalwood family; found in the southern provinces of Brazil and in Uruguay.

33975. Juglans australis Grisebach. **Walnut.**

Distribution.—A large tree whose timber is much used for furniture; found on the slopes of the Andes in the vicinity of Oran in northern Argentina.

33976. Jacobinia suberecta Andre.

33977. Justicia ventricosa Wallich.

Distribution.—An evergreen shrub with scarlet flowers found in the province of Kwangtung in China, and in Pegu and Tenasserim in India.

33978. Lass hastata (Cav.) Kuntze.

(*Pavonia hastata* Cav.)

Distribution.—A shrubby plant belonging to the mallow family; found in the province of Cordoba in Argentina.

33979. Lathyrus magellanicus Lamarck.

Distribution.—An herbaceous perennial legume with bluish-purple flowers found at the Straits of Magellan.

33980. Leucaena glauca (L.) Benth.

33981. Lithrea molleoides (Vell.) Engler.

(*Lithrea aroeirinha* March.)

The juice of the fruit when fermented gives a drink like the Indian chicha made from maize.

Distribution.—A shrub found on the edges of forests and along streams in the provinces of Minas Geraes and Sao Paulo in Brazil, and in Bolivia.

33982. Alegria divaricata (Martius) Stuntz.

(*Lühea divaricata* Martius, Nova Genera et Species, vol. 1, p. 101, 1824.)

Seeds of this tiliaceous tree from Guiana were received under the name *Lühea divaricata* Mart. The generic name Lühea was first used in 1793, by F. W. Schmidt (Neue und Seltene Pflanzen, p. 23), for a verbenaceous genus, thus invalidating the Willdenovian tiliaceous Luehea, published in 1801 (Neue Schriften Ges. Naturf. Freunde Berlin, vol. 3, p. 410). The next name given the genus is Alegria, published in 1824 by De Candolle (Prodromus, vol. 1, p. 516) with a single species, *A. candida*. This is recognized as congeneric with the present plant, and the generic name Alegria is therefore adopted.

A tree belonging to the linden family, with very light, close-grained, white wood, used for musket stocks and wooden shoes.

Distribution.—Found in the province of Sao Paulo in Brazil.

33983. Maba sp.

Seeds of this plant were received under the name *Maba argentinensis*, but the place of publication of this species has not as yet been found.

33913 to 34038—Continued.

33984. Mandevilla suaveolens Lindl.

Distribution.—A climbing shrub with large white flowers found in the vicinity of Buenos Aires in Argentina.

33985. Menodora integrifolia (Cham. and Schlecht.) Steudel.

Distribution.—A shrub found on dry sterile hills and plains in the valley of the La Plata in Argentina.

33986. Mimosa adpressa Hook. and Arn.

Distribution.—A leguminous shrub found in the province of Entre Rios in Argentina.

33987. Mimosa sepiaria Bentham.

Distribution.—Common in hedges in southern Brazil and northward to Bahia and Pernambuco.

33988. Morrenia odorata (Hook. and Arn.) Lindl.

Distribution.—A twining vine with greenish, sweet-smelling flowers belonging to the milkweed family; found in the vicinity of Buenos Aires in Argentina.

33989. Myroxylon salzmanni (Clos) Kuntze.
(*Xylosma salzmanni* Eichl.)

Distribution.—A tree found in the provinces of Bahia and Sao Paulo in Brazil.

33990. Nageia andina (Poepp.) Mueller.
(*Podocarpus andina* Poepp.)

Distribution.—A small tree belonging to the yew family; found on the slopes of the Andes in southern Chile.

33991. Heimia salicifolia Link and Otto.
(*Nesaea salicifolia* H. B. K.)

A bushy shrub with willowlike leaves and yellow flowers in the axils of the leaves. The twigs are strewn on the floors to drive away flies, and a decoction of the leaves is used as a sudorific.

Distribution.—Steep mountain slopes from San Luis Potosi in northern Mexico southward through Mexico, Central America, and South America to Uruguay.

33992. Nierembergia frutescens Bur.

Distribution.—A decumbent herbaceous perennial with blue and white flowers; found in Chile; often cultivated in greenhouses.

33993. Parkinsonia aculeata L.

See No. 32820 for previous introduction.

33994. Patagonula americana L.

Distribution.—A shrub belonging to the borage family; found in southern Argentina and southward to the Straits of Magellan.

33995. Pfaffia glauca (H. B. K.) Spreng.

33996. Phalocallis gracilis (Klatt) Kuntze.
(*Cypella gracilis* Baker.)

Distribution.—An herbaceous perennial belonging to the iris family and having yellow, lilac-tinged flowers; found in central Brazil and in Paraguay.

33997. Phalocallis herberti (Herbert) Kuntze.
(*Cypella herberti* Herbert.)

"This pretty little Buenos Airean iris may with me claim to have been the most satisfactory flower of the year in the garden. Its first blossom opened

33913 to 34038—Continued.

on the last day of June, and the last withered on October 24. Not a single day since the commencement of its flowering, a period of nearly four months, has it been without expanded blooms, sometimes 20 to 30, sometimes but a bare half dozen. As in the case with its relatives, the Tigridias, the blossoms only retain their beauty for a day, but they are produced in such rapid succession that their speedy decease is unremarked. How many hundred of flowers my dozen or so bulbs have produced this year I have no idea, but the number has probably exceeded a thousand. The 3-petaled, apricot-yellow blossoms, with the narrow black band bisecting each petal, and the beautiful modeled center, are quite charming; and the knowledge that every day there will be fresh flowers to admire gave the plant an increased value. They made particularly vigorous growth, their flower stems just exceeding 3 feet in height. They are growing in a narrow, raised border facing southwest and backed by a wall. The soil is a mixture of peat, leaf mold, a little loam, and a large proportion of coarse grit." (*S. W. Fitzherbert, Gardeners' Chronicle, December 3, 1904.*)

Distribution.—A bulbous-rooted perennial of the iris family, having yellow flowers; found in southern Brazil, Uruguay, and Argentina.

33998. PHILIBERTELLA RIPARIA (Decaisne) Stuntz.

(*Sarcostemma riparium* Decaisne, in De Candolle, Prodromus, vol. 8, p. 540, 1844.)

Seeds of this asclepiadaceous climber from Brazil were received under the name *Philibertia riparia* (Decaisne) Malme (Bulletin de l'Herbier Boissier, ser. 2, vol. 3, p. 63, 1902). Miss Anna Murray Vail has shown (Bulletin, Torrey Botanical Club, vol. 24, p. 305, 1897) that the generic name Philibertia as applied here must be replaced by Philibertella. The plant in question was originally described by Decaisne as *Sarcostemma riparium*, which is here made the basis of the new combination, *Philibertella riparia*.

33999. PHYTOLACCA DIOICA L.

See No. 31482 for description.

34000. PIPTADENIA CEBIL Grisebach. **Cebil colorado**

Distribution.—A leguminous tree, constituting most of the forest in the vicinity of La Cruz in the province of Tucuman in Argentina.

34001. PIPTADENIA RIGIDA Bentham. **Cebil blanco.**

Furnishes angico gum, similar to gum arabic. Very rich in tannin, the bark sometimes running 40 per cent.

Distribution.—An unarmed shrub or tree found in Brazil.

34002. PITHECOCTENIUM SQUALUS (Vell.) DC.

Distribution.—A bignoniaceous, shrubby climber with yellow flowers found along streams in Brazil.

34003. PLAZIA ARGENTEA (Don) Kuntze.

(*Hyalis argentea* D. Don.)

Distribution.—A shrubby perennial composite growing in large patches on the plains in southern Argentina.

34004. PLUMBAGO SCANDENS L. **Devil's-herb.**

A most energetic blistering agent when fresh. Native of the Dominican Republic.

Distribution.—A shrubby climber found in the warmer parts of America from San Luis Potosi, in Mexico, southward to Brazil and Chile; also in southern Florida and the West Indies.

33913 to 34038—Continued.

34005. POLYMNIA SONCHIFOLIA Poepp. and Endl.

Distribution.—A composite found in Peru.

34006. MARTYNIA LUTEA Lindley.

Distribution.—A yellow-flowered herbaceous plant found in southern Brazil and Uruguay.

34007. PROSOPIS CHILENSIS (Molina) Stuntz. **Algaroba.**

See No. 31238 for description.

34008. PROSOPIS NIGRA Hieron. **Black algaroba.**

Distribution.—A tree found on the slopes of the mountains in western Argentina from the province of Cordoba southward.

34009. PTEROGYNE NITENS Tulasne.

Distribution.—A leguminous tree with hard wood found in the province of Bahia in Brazil.

34010. RIVINA HUMILIS L.

Distribution.—A partly shrubby perennial found from Arkansas to Florida and Texas and throughout tropical and subtropical America; also introduced in the Old World Tropics.

34011. ROLLINIA PARVIFLORA St. Hil.

Distribution.—A tall shrub or small tree belonging to the Annona family, found in the primeval forests of southern Brazil.

34012. RUELLIA LORENTZIANA Griseb.

Distribution.—An herbaceous perennial found in the province of Tucuman in Argentina.

34013. RUPRECHTIA FAGIFOLIA Meisner.

Distribution.—A shrub or small tree belonging to the buckwheat family and having yellow flowers with a rosy tinge on opening; found in the province of Bahia in Brazil.

34014. SALIX CHILENSIS Mol. **Willow.**

This tree has been listed in previous numbers of these inventories as *Salix humboldtiana* Willd. The earliest name given to the species, however, was *Salix chilensis*, given by Molina (Saggio sulla Storia Naturale del Chili, p. 137, 1782).

See No. 28710 for description.

34015. SALPICHROA RHOMBOIDEA (Gillies and Hook.) Miers.

Distribution.—An herbaceous perennial belonging to the potato family and having edible fruits; found in hedges in the vicinity of Buenos Aires in Argentina.

34016. SCHINOPSIS LORENTZII (Griseb.) Engler. **Quebracho colorado.**
(*Quebrachia lorentzii* Griseb.)

This produces less quebracho than *Schinopsis balansae*, but of better quality.

Distribution.—The provinces of Tucuman and Santiago del Estero in Argentina.

34017. SCHINUS TEREBINTHIFOLIUS AROIERA (Vell.) March. **Molle**

Distribution.—A shrub or small tree resembling the California pepper tree; found in dry woods in the vicinity of Rio de Janeiro in Brazil.

34018. SERJANIA EXARATA Radlk.

Distribution.—A climbing shrub belonging to the Sapindaceae; found in deep woods along the banks of the upper Amazon in Brazil.

33913 to 34038—Continued.

34019. Sesban paulensis Barb. Rodr.

Description.—A legume found in the province of Sao Paulo in Brazil.

34020. Daubentonia tripetii Poiteau.

The genus Daubentonia is generally considered as a subgenus of Sesban, but examination of the seeds and pods shows sufficient differences to warrant us in following Dr. John K. Small in retaining it as a distinct genus.

Distribution.—A shrub with evenly pinnate leaves and yellow flowers found in Argentina.

34021. Sida bonariensis Willd.

Distribution.—A shrubby plant belonging to the mallow family; found in the vicinity of Buenos Aires in Argentina.

34022. Solanum bonariense L.

Distribution.—An unarmed, solanaceous, shrubby perennial found in cultivated fields in the region of Buenos Aires in Argentina.

34023. Stenolobium stans (L.) Seemann.

(*Tecoma stans* Juss.)

Distribution.—A partly shrubby perennial belonging to the Bignoniaceæ; found in sandy soil from Florida and southern Texas southward through Mexico and Central America.

34024. Stenolobium stans (L.) Seemann.

(*Tecoma stans* Juss.)

34025. Strophopappus speciosus (Less.) Stuntz.

(*Vernonia speciosa* Less., Linnæa, vol. 4, p. 290, 1829.)

(*Stilpnopappus speciosus* (Less.) Baker, in Martius, Flora Brasiliensis, vol. 6, pt. 2, p. 138, 1876.)

Seeds of this asteraceous Brazilian species have been received under the name *Stilpnopappus speciosus* (Less.) Baker. The genus Stilpnopappus was published by Martius in De Candolle (Prodromus, vol. 5, p. 75, 1836), but the genus Strophopappus was published on the same page above the Stilpnopappus publication. Inasmuch as the two are recognized as congeneric, the earlier name should be used.

Distribution.—A shrubby composite found on dry hill slopes in the provinces of Matto Grosso, Minas Geraes, and Sao Paulo in Brazil.

34026. Stigmaphyllon jatrophaefolium Juss.

Distribution.—A yellow-flowered shrubby climber found along the rocky banks of the Uruguay River in the province of Rio Grande do Sul.

34027. Stigmaphyllon littorale Juss.

Distribution.—A climbing shrub found along the La Plata in Brazil.

34028. Tagetes minuta L.

Distribution.—An annual composite found in waste places in the vicinity of Valparaiso in Chile, at Buenos Aires in Argentina, and in central Brazil.

34029. Terminalia trifoliata Spreng.

Distribution.—A tree or tall shrub with 3-parted leaves and flattened, winged fruits, found in Brazil.

34030. Tipuana tipu (Bentham) Lillo.

(*Machaerium* (*Tipuana*) *tipu* Benth., Hook. Journal, Botany, vol. 5, p. 267, 1853.)

Seeds of this Bolivian mimosaceous tree were received under the name *Tipuana speciosa* Benth. (Journal, Linnean Society of Botany, vol. 4, Supple-

33913 to 34038—Continued.

ment, p. 72, 1860), with the citation of Bentham's own *Machaerium* (*Tipuana*) *tipu*. That this earlier name should be adopted under the rules of nomenclature was recognized in 1910 by Lillo (in Venturi and Lillo, Contribución al Conocimiento de los Arboles de la Argentina, p. 58), who used the name *Tipuana tipa* without full citation or adequate description.

34031. TOURNEFORTIA ELEGANS Cham.

Distribution.—A shrub belonging to the Borage family and bearing panicles of flowers with laciniate corollas, found in central Brazil.

34032. VALLESIA GLABRA (Cav.) Link.

(*Vallesia cymbaefolia* Ortega.)

Distribution.—An erect shrub with white flowers growing in waste places in Peru.

34033. VANILLOSMOPSIS POLYCEPHALA (DC.) Schult.-Bip.

Distribution.—A shrubby composite found on the plains in the province of Minas Geraes in Brazil.

34034. VERBESINA ARNOTTII Baker.

Distribution.—In fields and on plains in the province of Entre Rios in Argentina and in Paraguay.

34035. VERNONIA NITIDULA Less.

Distribution.—A partly shrubby composite found in fields along streams in central Brazil.

34036. VERNONIA SQUAMULOSA Hook. and Arn.

Distribution.—A shrubby composite found in the woods in the province of Tucuman in Argentina.

34037. VITEX MONTEVIDENSIS Cham.

Distribution.—A verbenaceous tree with valuable hardwood found in the southern provinces of Brazil and in Paraguay.

34038. (Undetermined.)

34039. ASPARAGUS DREPANOPHYLLUS Welw. **Asparagus.**

From St. Andre lez Lille, France. Purchased from Mr. Ch. Maillard. Received June 29, 1912.

See No. 13319 for previous introduction.

Plants.

34040 and 34041. CITRUS spp.

From Saigon, Cochin China. Presented by Mr. P. Morange, local director of the Agricultural and Commercial Service of Cochin China. Received June 29, 1912.

Seeds of the following:

34040. CITRUS NOBILIS Lour. **Orange.**

"*Caibé.*"

34041. CITRUS sp.

"*Citron Moi.*"

"These two varieties reproduce themselves well from seed." (*Morange.*)

34042 to 34045.

From Nice, Alpes Maritimes, France. Presented by Dr. A. Robertson Proschowsky, Chemin des Grottes, St. Helene. Received June 20, 1912.

Seeds of the following; quoted notes by Dr. Proschowsky:

34042. BERBERIS NAPAULENSIS (DC.) Spreng. **Barberry.**

"A strikingly beautiful evergreen, large and bushy. Producing abundantly its berries, which can be used in different ways; for instance, the juice, easily pressed out, may be boiled with sugar."

34043. EUPATORIUM ATRORUBENS (Lemaire) Beddome.

34044. MIMOSA GLOMERATA Forskål.

34045. RUBUS sp.

"This is a plant whose origin is unknown to me. I receive seeds from many places, and sometimes the ants carry them to different parts of my garden, where they germinate in such a way that I can not trace their origin. Three years ago a seedling came up which was easily seen to be Rubus. I planted it out the following year and it is now a large climber, reaching nearly to the top of an olive tree. The plant has beautiful evergreen leaves, rose-colored flowers, and produces an abundance (several kilos) of yellow, very good and juicy fruits. I suppose that the plant may possibly be new or rare in culture."

34046 to 34049.

From Australia. Presented by Mr. E. Breakwell, economic botanist, Department of Agriculture, Sydney, New South Wales. Received June 19, 1912.

Seeds of the following; quoted notes by Mr. Breakwell:

34046. ANDROPOGON PERTUSUS (L.) Willd. **Pitted bluegrass.**

"A grass similar to *Andropogon sericeus* in habitat. Yields abundant and nutritious feed and, like its congeners, endures drought and frost splendidly."

34047. ANDROPOGON SERICEUS R. Brown. **Queensland bluegrass.**

"Very widely distributed in Australia. A most palatable grass to stock. Grows over 3 feet high on good soil and never less than 1 foot on the worst of soils. Keeps green all the year round and is with difficulty affected by drought or frost."

34048. PANICUM DIVARICATISSIMUM R. Brown. **Spider grass.**

"New South Wales has for two years been suffering from a most severe drought, about 1 inch of rain having fallen in six months, in some places in the interior. This grass, in spite of the droughty conditions, remained green when other vegetation was completely dried up. As it is a most palatable and nutritious fodder it is of great promise."

Distribution. A low grass found in South Australia, Queensland, and New South Wales.

34049. PANICUM EFFUSUM R. Brown.

"Widely distributed. Very nutritious and palatable; drought resisting."

Distribution.—A grass found in Queensland and New South Wales in Australia.

34050. ANNONA PURPUREA Moç. and Sessé. **Ilama.**

From Tehuantepec, Mexico. Presented by Mr. W. W. Miller, Los Angeles, Cal. Received June 15 and July 6, 1912.

"These seeds came from an extremely large ilama fruit, probably 8 inches in diameter. The fruit grows on a tree more like a mulberry than ny other tree I know of

34050—Continued.

grown in the North. I have never known the fruit to grow north of the south end of the State of Vera Cruz or Oaxaca. It grows in a very warm, moist climate.

"The fruit is something like a cherimoya, but is of a more delicate flavor. The trees are not prolific bearers; perhaps a dozen fruits on one tree is as many as I have ever seen growing at one time. The seeds came from a fruit I brought from Mexico last September." (*W. W. Miller.*)

34051. BOMBAX sp.

From Philippine Islands. Presented by Mr. E. D. Merrill, botanist, Department of the Interior, Bureau of Science, Manila Received June 17, 1912.

"Seeds and floss of an apparently undescribed bombacaceous plant, possibly Bombax. It was recently collected on Camaguin Island, near the active volcano.

"It strikes me that the floss is both softer and lighter than is that of the commercial kapoc (*Eriodendron ceiba*) [*Ceiba pentandra*]. I thought it possible that the species, whatever it may prove to be, might be grown in southern Florida, certainly in Porto Rico, and that it may prove to have some commercial value. Here in the Philippines it is quite unknown save for the single collection of Camaguin Island." (*Merrill.*)

"I have examined this fiber under the microscope and also have made measurements of the length. In most respects it is very similar to Japara kapok, which is the best grade of kapok imported from Java. The seeds, however, indicate clearly that it is not the same species as *Ceiba pentandra* (*Eriodendron anfractuosum*) cultivated in Java." (*Lyster H. Dewey.*)

34052. PISTACIA ATLANTICA Desf. **Betoom.**

From Algiers, Algeria. Presented by Dr. L. Trabut. Received June 29, 1912.

See Nos. 9325 and 30611 for previous introduction.

34053 and 34054.

From Peking, China. Presented by Dr. Yamei Kin, Pei-Yang Woman's Medical School and Hospital, East Gate, suburb, Tientsin, China. Received June 26, 1912.

Seeds of the following; quoted notes by Dr. Kin:

34053. ZEA MAYS L. **Corn.**

"This seems to be a true '*mi pang tze*,' that is, the waxy kind.

"One ear has some white kernels which, I am told, show that it is a hybrid and these seeds will not always come true, though in this particular case they seem to be of the waxy kind also, as the little farinaceous center indicates."

34054. ZIZIPHUS JUJUBA Miller. **Jujube.**
(*Zizyphus sativa* Gaertner.)

"Ordinary northern tsao, which forms the main staple product. Selected for size from baskets exposed for sale in the markets at Peking."

34055. SOLANUM sp.

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, National Museum. Received June 10, 1912.

Tubers of this species were received under the name *Solanum turmiferum*, but the place of publication of this name has not yet been found.

"Of the group *Solanum columbianum.*" (*Wercklé.*)

34056 to 34062. CUCUMIS MELO L. **Muskmelon.**

From Puerto Plata, Dominican Republic. Presented by Mr. Charles M. Hathaway, jr., American consul. Received June 13, 1912.

Seeds of the following; quoted notes by Mr. Hathaway:

34056. Mixed seed.

34057. Mixed seed.

The above seed will be grown for determination and selection.

34058. "Ellipsoid, 16 by 27½ inches, flesh pinkish orange colored, much less hard than the following (S. P. I. No. 34059), outside yellow without network, fine flavor."

34059. "Same as the following (S. P. I. No. 34060), 18½ by 25 inches, exceptionally sweet and fine flavored."

34060. "Nearly round, 22½ by 26 inches, flattened like the earth, yellow, marking like *Rockyford*, flesh very hard, deep orange except near rind."

34061. "Exterior marked like *Rockyford* but yellow, 19 by 21 inches, otherwise same as the following (S. P. I. No. 34062)."

34062. "Nearly round, 19 by 21½ inches, yellowish outside, partially covered with a fine green network resembling a *Rockyford* cantaloupe in this and in shape; flesh very solid, green at rim, deep orange inside. This melon was a trifle underripe."

34063. ULMUS sp. **Karagatch elm.**

From Fallon, Nev. Presented by Mr. F. B. Headley, Superintendent, Truckee-Carson Experiment Farm, Office of Western Agricultural Extension, United States Department of Agriculture. Received at the Plant Introduction Field Station, Chico, Cal., in spring of 1912. Numbered June 29, 1912.

"Plants of an elm grown from seed which was sent to this station by Mr. A. P. Davis, of the Reclamation Service, from Byram Ali, Turkestan, Transcaspian Province, Russia. Mr. Davis describes this elm as follows:

"'I am sending you in this mail a small package of seed of *Karagatch*, a species of elm that thrives in this place and which I think will thrive in the Carson Valley. It is a rapid grower and a much harder and better wood than the American elm, while it is as good or better for windbreak and shade.'

"These elms made a growth last year of 4 to 8 inches from seeds planted in May." (*Headley.*)

Plants.

34064 and 34065. CARICA PAPAYA L. **Papaya.**

From Kingston, Jamaica, British West Indies. Presented by the Tangley Fruit Co. Received June 28, 1912.

"Fruits from trees the original seed of which was received from Hawaii." (*Tangley Fruit Co.*)

34064. "These seeds were taken from two fruits of medium size and exceptionally fine quality." (*David Fairchild.*)

34065. "The fruit from which these seeds were taken was of medium size and had a little of the sprightly flavor of a good mango. Those who tasted it pronounced it the best papaya they had eaten." (*R. A. Young.*)

34066 and 34067.

From Lucknow, India. Presented by Mr. H. J. Davies, Superintendent Government Botanical Gardens. Received June 4, 1912.

Seeds of the following:

34066. CAPRIOLA DACTYLON (L.) Kuntze. **Bermuda grass.**

34067. STIZOLOBIUM sp.

34068 to 34078.

From Buitenzorg, Java. Presented by Dr. J. C. Koningsberger, Director Botanic Gardens, Department of Agriculture. Received May 21, 1912.

Plants of the following:

34068 and 34069. CITRUS DECUMANA (L.) Murray. **Pomelo.**

34068. Variety *djeroek delima.*

34069. Variety *pandan.*

34070. CONGEA VELUTINA Wight.

Distribution.—A climbing shrub found in Tenasserim in India and in the islands of the Malay Archipelago.

34071. DAMMARA ALBA Rumph.
(*Agathis loranthifolia* Salisb.)

See No. 33093 for previous introduction.

34072 and 34073. DURIO ZIBETHINUS Murray.

34072. Forma *ochroleuca.*

34073. Forma *lutea.*

34074. LANSIUM DOMESTICUM Jack. **Doekoe.**

See Nos. 21823, 22385, and 24431 for previous introductions.

34075. LITCHI CHINENSIS Sonnerat. **Litchi.**
(*Nephelium litchi* Cambess.)

34076. MANGIFERA INDICA L. **Mango.**
Variety *mangga madoe.*

34077. NEPHELIUM LAPPACEUM L. **Rambutan.**
Variety *atjeh.*

34078. TALAUMA MUTABILIS Blume.
Variety *splendens.*

34079 to 34084. Palm.

From Seychelles Islands. Presented by Mr. P. Rivaly Dupont, Curator Botanical Station. Received June 7, 1912.

Seeds of the following:

34079. DECKENIA NOBILIS Wendl.

Distribution.—A tall palm, often 120 feet in height, found in the Seychelles Islands.

34080. NEPHROSPERMA VANHOUTTEANA (Wendl.) Balf. f.

Distribution.—A palm, often 35 feet in height, found in open places and along streams in the Seychelles Islands.

34079 to 34084—Continued.

34081. Phoenicophorium borsigianum (Koch) Stuntz.
(*Astrocaryum borsigianum* C. Koch, Wochenschrift, p. 401, 1859.)
(*Stevensonia grandifolia* Duncan, Flore des Serres, vol. 15, p. 177, 1865.)

Seeds of this spiny-stemmed palm from the Seychelles Islands were received under the name *Phoenicophorium sechellarum* Wendl. (Illustration Horticole, vol. 12, Miscel., p. 5, 1865). The earliest name given this species, however, was *Astrocaryum borsigianum* Koch, which specific name is here adopted. The name *Stevensonia grandifolia* Duncan used in the Index Kewensis, although there cited as appearing in 1862–63, really appeared in April, 1865, as shown in the text, and Wendland's name is cited in the synonymy under this name.

Distribution.—A palm with spiny stem and orange-red fruits, common in the Seychelles Islands.

34082. Roscheria melanochaetes Wendl.

See No. 33347 for previous introduction.

34083. Verschaffeltia splendida Wendl.

Distribution.—A tall palm with large leaves, found in rocky places in the Seychelles Islands.

34084. (Undetermined.)

34085 to 34092.

From Nogent sur Marne, Seine, France. Presented by the Director of the Colonial Garden. Received June 3, 1912.

Plants of the following:

34085. Cymbopogon citratus (DC.) Stapf. **Citronella grass.**
(*Andropogon citratus* DC.)

34086. Annona cherimola Miller. **Cherimoya.**

34087. Curcuma longa L. **Turmeric.**

Distribution.—An herbaceous plant cultivated and probably native in India; generally cultivated in the Tropics.

34088. Passiflora laurifolia L. **Passion fruit.**

See No. 23879 for previous introduction.

34089. Piper nigrum L. **Pepper.**

See No. 29467 for previous introduction.

34090. Tabernanthe iboga Baillon. **Iboga.**

This shrub, which is cultivated around dwellings in the Kongo because of the use of its seeds in native medicine, furnishes an alkaloid, ibogain, of considerable interest, which is being investigated for its possible value.

Distribution.—A shrub or small tree found in the Gabon district of French Kongo in western Africa.

34091. Xanthosoma sagittaefolia (L.) Schott.

"In small plants the blades stand nearly horizontal. The petioles are green, with a whitish bloom, and there is a marginal line of maroon on the sinus wing." (*R. A. Young.*)

34092. Oryza sp. **Perennial rice.**

This is a perennial rice from Senegal, West Africa.

"In the Richard Toll region in North Senegal, Mr. Paul Ammann has discovered a rice that differs from all other African rices in that it has rhizomes and

34085 to 34092—Continued.

multiplies thus without depending on seed. This rice is considered so superior to other rice that at Saint Louis, Senegal, the natives exchange one calabash of it for three of imported rice. The stalks of perennial rice, especially when green, constitute a forage of excellent quality. It grows in rather light soils, rich in potash and nitrogen but poor in phosphoric acid and lime. These soils contain also about 0.1 per cent of sodium chloride, so that this rice would probably grow in saline soils and might be cultivated where the soil is too salt for other crops or in those soils from which it is desirable to remove the salt in order to grow cotton or other plants." (*Ammann, Bulletin des Séances de la Societé Nationale d' Agriculture de France, vol. 70, pp. 893–900, 1910.*)

BOTANICAL NOTES AND PUBLICATION OF NEW NAMES.

Under this heading all notes on changes in the nomenclature of plants introduced by the Office of Foreign Seed and Plant Introduction, as well as notes on the use of scientific names in a different sense from the one ordinarily accepted, will be brought together, so that those interested in such matters may see at a glance what changes have been found necessary in this inventory without referring to the body of the publication.

In this inventory the practice has been adopted for the first time of giving in parenthesis, after the name of each introduction, the name recognized in the Index Kewensis where that differs in any way from the name adopted. It is hoped that this will be of considerable assistance by connecting the names of introductions which have been changed under the American Code of Botanical Nomenclature with the names under which the plants are known in the foreign literature.

NOTES ON INTRODUCTIONS APPEARING IN PREVIOUS INVENTORIES.

23032. SYRINGA MEYERI C. K. Schneider.

This North Chinese species of lilac, received from Mr. Frank N. Meyer, June, 1908, and collected by him at Fengtai, near Peking, Chihli, China, has been recently described as a new species under the name *Syringa meyeri* C. K. Schneider (Plantæ Wilsonianæ, pt. 2, p. 201, 1912.)

23283–4. MEDICAGO ARABICA INERMIS P. L. Ricker.

Seeds of these bur clovers were listed in Inventory No. 15 as *Medicago arabica* (L.) All. Mr. P. L. Ricker, who is making a special study of the Medicagos with a view to monographing the various genera of which the aggregate genus is composed, has determined these numbers as a new subspecies, *Medicago arabicu inermis* Ricker, and has published a description and plate thereof in Bulletin No. 267, Bureau of Plant Industry, on Nonperennial Medicagos, p. 33, pl. 12, fig. 1, lower row, 1913.

24591, 25089. CHAETOSPERMUM GLUTINOSUM (Blanco) Swingle.

Seeds of this Philippine tree were listed under the name *Belou glutinosa* (Blanco) Skeels, in Inventory No. 18 of this series. As a result of his recent studies of the citrus fruits and their wild relatives, Mr. Walter T. Swingle has decided that this species is entitled to rank as a genus distinct from Belou and has published the new combination *Chaetospermum glutinosum* (Blanco) Swingle (Journal of the Washington Academy of Sciences, vol. 3, p. 102, 1913.)

28799 to 28800. FERONIELLA LUCIDA (Scheff.) Swingle.

Seeds of this plant were listed in Inventory No. 24, as *Feronia lucida* Scheff. Mr. Walter T. Swingle, however, in Bulletin de la Société botanique de France, vol. 59, p. 781, 1912) has recognized this plant as belonging to a genus distinct from Feronia and has included it in Feroniella.

29341. FERONIELLA OBLATA Swingle.

Seeds of this plant were received under the name *Feronia elephantum* from Mr. P. Morange, director of the Agricultural and Commercial Service, Saigon, Cochin China. In a recent publication (Bulletin de la Société botanique de France, vol. 59, p. 779, 1912) Mr. Walter T. Swingle has made this plant the type of a new genus, Feroniella, distinct from Feronia, and has named it *Feroniella oblata*.

31872. ARISTOCLESIA ESCULENTA (Arruda) Stuntz.

In a recent letter Mr. C. F. Mead, who presented the seed on which this number is based, called our attention to the fact that the quoted description applied rather to No. 34309, sent in by him later, and gives the following description of the pacuri:

"The pacuri is a large forest tree, growing to a height of 20 meters in some instances. The fruit is a bright-yellow color, about the size of a hen's egg, very similar in looks to the ordinary lime, but of a deeper yellow color."

NOTES ON INTRODUCTIONS APPEARING IN THE PRESENT INVENTORY.

The following names are either first published here or are used in a sense different from the accepted one.

33281. HOLCUS SORGHUM L.

(*Sorghum vulgare* Pers.)

This plant, which has been listed in previous numbers of these inventories as *Andropogon sorghum* (L.) Brot., and is listed in the Index Kewensis as *Sorghum vulgare* Pers., has been identified as the type of the genus Holcus by Mr. A. S. Hitchcock, Bureau of Plant Industry, who says (Grasses of Cuba, Contributions from U. S. National Herbarium, vol. 12, pt. 6, p. 195, 1909): "*Holcus sorghum* L. must be considered the type of the genus Holcus, since it is the most important economic species of the genus, and, further, since, in the fifth edition of his Genera Plantarum, Linnæus refers to the genus Sorgum Mich [eli] as a synonym of Holcus." It is therefore necessary to use this original Linnæan name for the sorghum.

33306. HEDYSARUM HEDYSAROIDES (L.) Stuntz.

(*Astragalus hedysaroides* L., Species Plantarum, p. 756, 1753.)

Seeds of this species were received from St. Petersburg under the name *Hedysarum obscurum* L. This name was published in 1759 by Linnæus (Systema Naturæ, ed. 10, p. 1171) and the species is there based on *Astragalus hedysaroides* L. As the earliest specific name, *hedysaroides* should be adopted.

33428. PENNISETUM GLAUCUM (L.) R. Brown.

(*Panicum glaucum* L., Species Plantarum, p. 56, 1753.)

This species, which has been listed in previous numbers of the inventories as *Pennisetum americanum* (L.) Schum. and in the Index Kewensis as *P. typhoideum* Rich., was first described by Linnæus (Species Plantarum, p. 56, 1753) as *Panicum glaucum*, based on a specimen from Ceylon. This specimen, which is still preserved in the British Museum, has been identified by Trimen (Journal Linnean Society, vol. 24, p. 136, 1896) as the pearl millet, and it is therefore necessary to use the name *Pennisetum glaucum* for this plant.

33495. ARISTOTELIA CHILENSIS (Molina) Stuntz.

(*Cornus chilensis* Molina, Saggio sulla Storia Naturale del Chili, p. 173, 1782.)

Seeds of this small evergreen tiliaceous tree from Chile were received under the name *Aristotelia macqui* L'Herit. (Stirpes novae, p. 31, pl. 16, 1784). The earliest name given to the plant, however, was *Cornus chilensis*, published by Molina in 1782. It is necessary, therefore, to make the new combination, *Aristotelia chilensis*.

33507. ASSONIA CALANTHA (Schum.) Stuntz.

This tropical African sterculiaceous shrub was received under the name *Dombeya calantha* Schumann (Engler Monog. Afr. Pfl. vol. 5, p. 28, 1900). It has been shown, however, in Inventory 24 of this series (Bur. Pl. Ind. Bul. 223, p. 64, 1911) that Assonia is the correct name for this genus, and it is therefore necessary to use that name for this species.

33550. PROSOPIS CHILENSIS (Molina) Stuntz.

(*Ceratonia chilensis* Molina, Saggio sulla Storia Naturale del Chili, p. 172, 1782.)

(*Mimosa juliflora* Swartz, Prodromus, p. 85, 1788.)

(*Prosopis juliflora* (Swartz) DC., Prodromus, vol 2, p.447, 1825.)

Seeds of this mimosaceous tree from Chile were received under the name *Prosopis juliflora* (Swartz) DC., based on *Mimosa juliflora* Swartz. The earliest name given this plant, however, was *Ceratonia chilensis* Molina, published in 1782, which specific name it is necessary to adopt.

33551. ACACIA SCORPIOIDES (L.) W. F. Wight.

This plant was received under the name *Acacia arabica* (Lam.) Willd., under which name it had been listed in previous numbers of these inventories. The earliest name given this plant was *Mimosa scorpioides* L. (Species Plantarum, p. 521, 1753), as was recognized by Mr. W. F. Wight in 1905 (Useful Plants of Guam, Contributions from U. S. National Herbarium, vol. 9, p. 173).

33563. CERBERA THEVETIA L.

Seeds of this species were received under the name *Thevetia nereifolia* Juss. The earliest name for this plant was *Cerbera thevetia* L. (Species Plantarum, p. 209, 1753). The type of the genus Cerbera, as determined by the references in Linnæus's *Genera plantarum*, 1754, is *C. ahouaj* L. (Species Plantarum, p. 208), with which *C. thevetia* is universally regarded as congeneric. For this reason the original generic name Cerbera should be retained for this species as well as for *C. ahouaj*, which is generally known as *Thevetia ahouaj*.

33570. GUILANDINA BONDUC L.

(*Caesalpinia bonducella* Flem., Asiatic Researches, vol. 11, p. 159, 1810.)

The name generally applied to the gray-seeded nicker nut is *Caesalpinia bonducella* Fleming. Trimen, in the Journal of the Linnean Society, vol. 24, p. 141, 1887, has identified as *Caesalpinia bonducella* the specimen of Flora Zeylanica, No. 156, on which Linnæus based his *Guilandina bonduc* in Species Plantarum, p. 381, 1753. According to the present rules of botanical nomenclature, it is necessary to adopt this earlier name for this species. (See Science, vol. 37, p. 921, 1913.)

33614. CHAETOCHLOA INTERMEDIA (Roem. and Schult.) Stuntz.

(*Setaria intermedia* Roem. and Schult., Systema Vegetabilium, vol. 2, p. 489, 1817.)

The seeds of this Indian grass were received as a species of Setaria and were identified as *Setaria intermedia*, which seems not to have been heretofore transferred to the genus Chaetochloa.

33615. CHAETOCHLOA LUTESCENS (Weigel) Stuntz.

(*Panicum lutescens* Weigel, Observationes botanicæ, p. 20, 1772.)

Seeds of this species have been listed in previous numbers of these inventories as *Chaetochloa glauca* (L.) Scribner, based on *Panicum glaucum* L. (Species Plantarum, p. 56, 1753). The type of Linnæus's species has been determined as *Pennisetum glaucum* (L.) R. Br., hitherto listed in these inventories as *Pennisetum americanum* (L.) Schum. It is necessary, therefore, to adopt for the plant under discussion the earliest specific name, *lutescens*.

33786. CYMBOPOGON CITRATUS (DC.) Stapf.

(*Andropogon citratus* DC.)

This species and the next (No. 33787) have been listed in previous numbers of these inventories as *Andropogon citratus* and *A. nardus*, respectively, but recent students of grasses, and especially Stapf, who has published a monograph of the oil grasses, recognize the two as belonging to the distinct genus Cymbopogon.

33854. HELENIUM GLAUCUM (Cav.) Stuntz.

(*Cephalophora glauca* Cavanilles, Icones, vol. 6, p. 80, pl. 599, 1801.)

Seeds of this asteraceous plant from Chile were received under the name *Cephalophora glauca* Cav. Since Cephalophora is now considered merely a section of the genus Helenium, it is necessary to use the name *Helenium glaucum*, which seems never to have been published.

33871. FLAVERIA BIDENTIS (L.) Robinson.

(*Ethulia bidentis* L., Mantissa, p. 110, 1767.)
(*Milleria contrayerba* Cav., Icones, vol. 1, p. 2, 1791.)
(*Flaveria contrayerba* (Cav.) Persoon, Synopsis, vol. 2, p. 489, 1807.)

Seeds of this asteraceous biennial from Chile were received under the name *Flaveria contrayerba* (Cav.) Persoon. The earliest name to be applied to the plant, however, is *Ethulia bidentis* L., as shown by Robinson (Proc. Amer. Acad., vol. 43, p. 42, 1907.)

33928. SALOA HIERONYMI (Urban) Stuntz.

(*Blumenbachia hieronymi* Urban, Jahrbuch K. Botanisches Garten, Berlin, vol. 3, p. 249, 1884.)

Seeds of this loasaceous plant from Argentina were received under the name *Blumenbachia hieronymi*. The generic name Blumenbachia was first used by Koeler in 1802 (Descriptio graminum, p. 28) for a genus of grasses, based on *Holcus haleppensis*, thus invalidating its use in 1825 by Schrader (Commentationes K. Gesellschaft Wissenschaft Gottingen, vol. 6, p. 92) for the present loasaceous genus. As no other name has been given to this genus, the name Saloa, anagram of Loasa, to which the plant was formerly assigned, is here adopted as the generic name, the type being *Saloa insignis* (*Blumenbachia insignis* Schrad.)

33946. COMBRETUM FRUTICOSUM (Loefling) Stuntz.

(*Gaura fruticosa* Loefling, Iter Hispanicum, p. 248, 1758.)
(*Combretum laxum* Loefling, Reise, p. 320, 1766.)
(*C. micropetalum* DC., Prodromus, vol. 3, p. 19, 1828.)
(*C. loeflingii* Eichler, in Martius, Flora Brasiliensis, vol. 14, pt. 2, p. 110, 1867.)

Seeds of this South American shrub were received under the name *Combretum micropetalum* DC. Eichler, however, in 1867, in his revision of the Brazilian species of the genus Combretum gives the plant the name *C. loeflingii*, based on the *C. laxum* of the 1766 edition of Loefling's travels, not of Jacquin (Enumeratio Plantarum

33946—Continued.

Caribæum, p. 19, 1760), quite disregarding the fact that Loefling had previously published the name *Gaura fruticosa* for this species. In accordance with nomenclatorial usage, it is necessary to adopt the earliest specific name, *fruticosa*.

33982. ALEGRIA DIVARICATA (Martius) Stuntz.

(*Lühea divaricata* Martius, Nova Genera et Species, vol. 1, p. 101, 1824.)

Seeds of this tiliaceous tree from Guiana were received under the name *Lühea divaricata* Mart. The generic name Lühea was first used in 1793 by F. W. Schmidt (Neue und Seltene Pflanzen, p. 23), for a verbenaceous genus, thus invalidating the Willdenovian tiliaceous Luehea, published in 1801 (Neue Schriften Gesellschaft Naturforschende Freunde Berlin, vol. 3, p. 410). The next name given the genus is Alegria, published in 1824 by De Candolle (Prodromus, vol. 1, p. 516) with a single species, *A. candida*. This is recognized as congeneric with the present plant and the generic name Alegria is therefore adopted.

33998. PHILIBERTELLA RIPARIA (Decaisne) Stuntz.

(*Sarcostemma riparium* Decaisne, in De Candolle, Prodromus, vol. 8, p. 540, 1844.)

Seeds of this asclepiadaceous climber from Brazil were received under the name *Philibertia riparia* (Decaisne) Malme (Bulletin de l'Herbier Boissier, ser. 2, vol. 3, p. 63, 1902). Miss Anna Murray Vail has shown (Bulletin, Torrey Botanical Club, vol. 24, p. 305, 1897) that the generic name Philibertia as applied here must be replaced by Philibertella. The plant in question was originally described by Decaisne as *Sarcostemma riparium*, which is here made the basis of the new combination, *Philibertella riparia*.

34014. SALIX CHILENSIS Mol.

This tree has been listed in previous numbers of these inventories as *Salix humboldtiana* Willd. The earliest name given to the species, however, was *Salix chilensis* given by Molina (Saggio sulla Storia Naturale del Chili, p. 137, 1782).

34020. DAUBENTONIA TRIPETII Poiteau.

The genus Daubentonia is generally considered as a subgenus of Sesban, but an examination of the seeds and pods shows sufficient differences to warrant us in following Dr. John K. Small in retaining it as a distinct genus.

34025. STROPHOPAPPUS SPECIOSUS (Less.) Stuntz.

(*Vernonia speciosa* Less., Linnæa, vol. 4, p. 290, 1829.)

(*Stilpnopappus speciosus* (Less.) Baker, in Martius, Flora Brasiliensis, vol. 6, pt. 2, p. 138, 1876.)

Seeds of this asteraceous Brazilian species have been received under the name *Stilpnopappus speciosus* (Less.) Baker. The genus Stilpnopappus was published by Martius in De Candolle (Prodromus, vol. 5, p. 75, 1836), but the genus Strophopappus was published on the same page above the Stilpnopappus publication. Inasmuch as the two are recognized as congeneric, the earlier name should be used.

34030. TIPUANA TIPU (Bentham) Lillo.

(*Machaerium* (*Tipuana*) *tipu* Benth., Hook. Journal, Botany, vol. 5, p. 267, 1853.)

Seeds of this Bolivian mimosaceous tree were received under the name *Tipuana speciosa* Benth. (Journal, Linnean Society of Botany, vol. 4, Supplement, p. 72, 1860), with the citation of Bentham's own *Machaerium* (*Tipuana*) *tipu*. That this earlier

34030—Continued.

name should be adopted under the rules of nomenclature was recognized in 1910 by Lillo (in Venturi and Lillo, Contribución al Conocimiento de los Arboles de la Argentina, p. 58), who used the name *Tipuana tipa* without full citation or adequate description.

34081. PHOENICOPHORIUM BORSIGIANUM (Koch) Stuntz.

(*Astrocaryum borsigianum* C. Koch, Wochenschrift, p. 401, 1859.)
(*Stevensonia grandifolia* Duncan, Flore des Serres, vol. 15. p. 177, 1865.)

Seeds of this spiny-stemmed palm from the Seychelles Islands were received under the name *Phoenicophorium sechellarum* Wendl. (Illustration Horticole, vol. 12. Miscel., p. 5, 1865). The earliest name given this species, however, was *Astrocaryum borsigianum* Koch, which specific name is here adopted. The name *Stevensonia grandifolia* Duncan used in the Index Kewensis, although there cited as appearing in Flore des Serres, volume 15, page 177, 1862–63, really appeared in April, 1865, as shown in the text, and Wendland's name is cited in the synonymy under this name.

INDEX OF COMMON AND SCIENTIFIC NAMES.

Abelia corymbosa, 33315.
Abelmoschus esculentus, 33749.
Acacia spp., 33652, 33839.
    arabica. See *A. scorpioides*.
    cavenia, 33833, 33834.
    leucophloea, 33432.
    longifolia, 33838.
    melanoxylon, 33840.
    moniliformis, 33913.
    scorpioides, 33551.
Acer ginnala semenovii, 33355, 33356.
  oblongum, 33588.
  turkestanicum, 33316.
Actinidia chinensis, 33431.
Adansonia digitata, 33552.
Adolia buxifolia, 33914.
Aeschynomene histrix, 33915.
Agathis loranthifolia. See *Dammara alba*.
Agave cantala, 33508.
Akala. See *Rubus hawaiensis*.
Albizzia lucida, 33553.
Alegria divaricata, 33982.
Alfalfa (Africa), 33760.
    (Chile), 33711, 33712.
  See also *Medicago* spp.
Algaroba. See *Prosopis chilensis*.
    black. See *Prosopis nigra*.
Allamanda sp., 33651.
Allophylus edulis, 33916.
Almond, wild (Russia), 33311, 33312.
Alstroemeria ligtu, 33819 to 33822.
Alysicarpus bupleurifolius, 33599.
    pubescens, 33443.
    rugosus, 33444.
    vaginalis, 33598, 33600.
      nummularifolius, 33640.
Amerimnon lanceolarium, 33543.
    nigrum, 33917.
    sissoo, 33554, 33641.
Ammodendron argenteum, 33357.
    sieversii. See *A. argenteum*.
Ammophila villosa, 33320.
Ampelodesma bicolor, 33654, 33750.
Amphicarpaea sp. See *Falcata* sp.
Amygdalus bucharica, 33311.
Andropogon annulatus, 33595, 33596.
    citratus. See *Cymbopogon citratus*.
    nardus. See *Cymbopogon nardus*.
    pertusus, 33597, 34046.
    sericeus, 34047.
    sorghum. See *Holcus sorghum*.
Anneslia parviflora, 33918.
    tweedii, 33919.
Annona cherimola, 34086.
    purpurea, 34050.
    reticulata, 33745, 33747, 33748.
    squamosa, 33746.
Anogeissus sp., 33556.
    pendula, 33555.
Anthephora elegans. See *A. hermaphrodita*.
    hermaphrodita, 33692.
Arachis hypogaea, 33426.
Aralia quinquefolia. See *Panax quinquefolium*.
Araujia sericifera, 33920.
Argyreia megapotamica, 33921.
    nervosa, 33557.
Aristoclesia esculenta, 31872, p. 84.
Aristolochia rotunda, 33763.
Aristotelia chilensis, 33495.
    macqui. See *A. chilensis*.
Arnotto. See *Bixa orellana*.
Arracacha. See *Arracacia xanthorrhiza*.
Arracacia xanthorrhiza, 33467, 33468.
Arvore de paina. See *Chorisia speciosa*.
Asparagus (England), 33721 to 33735.
    (France), 34039.
    (Russia), 33309.
    (Teneriffe), 33780.
Asparagus sp., 33735.
    africanus, 33723.
    albus, 33780.
    drepanophyllus, 33724, 34039.
    falcatus, 33725.
    filicinus, 33715.
    madagascariensis, 33726.
    myriocladus, 33727.

Asparagus plumosus, 33728, 33729.
    racemosus, 33730.
    retrofractus, 33731.
    sarmentosus, 33721, 33732.
    schoberioides, 33309.
    trichophyllus, 33733.
    umbellatus, 33722, 33734.
Asperugo procumbens, 33754.
Assonia calantha, 33507.
Asteriscium chilense, 33800.
Astragalus hedysaroides. See *Hedysarum hedysaroides*.
Astrocaryum borsigianum. See *Phoenicophorium borsigianum*.
Astronium balansae, 33922.
Atriplex cristata, 33923.
Avena nuda, 33690.
    sativa, 33289, 33644.
Azara sp., 33841.
    gilliesii, 33835.
    serrata, 33837.

Babul. See *Acacia scorpioides*.
Baccharis chilquilla. See *B. confertifolia*.
    confertifolia, 33842.
Backhousia citriodora, 33643.
Banana, Bumulan, 33689.
Baobab. See *Adansonia digitata*.
Barberry (Chile), 33699, 33843 to 33850.
    (France), 34042.
    (India), 33589.
    (Sweden), 33757 to 33759.
  See also *Berberis* spp.
Barley (China), 33691.
Baryxylum dubium, 33924.
Bauhinia kurzii, 33558.
    rosea. See *B. kurzii*.
    vahlii, 33559.
Bayberry. See *Pimenta acris*.
Bean, broad. See Broad bean.
Beaumontia grandiflora, 33544, 33560.
Beet (Sweden), 33674 to 33681.
Beloperone plumbaginifolia, 33925.
Benincasa cerifera. See *B. hispida*.
    hispida, 33626.
Berberis spp., 33589, 33699, 33844 to 33848.
    aristata, 33545.
    bealei. See *B. japonica bealei*.
    buxifolia, 33496.
    chilensis, 33843, 33849, 33850.
    cretica, 33757.
    hookerii, 33497.
    japonica bealei, 33498.
    napaulensis, 34042.
Berberis ruscifolia, 33926.
    serrata, 33758.
    thunbergii, 33759.
Beta vulgaris, 33674 to 33681.
Betoom. See *Pistacia atlantica*.
Birthwort. See *Aristolochia rotunda*.
Bixa orellana, 33927.
Bluegrass, Queensland, 34047.
Blumenbachia hieronymi. See *Saloa hieronymi*.
Bombax sp., 34051.
Boquila trifoliata, 33851.
Bradburya brasiliana, 33929.
Brassica sp., 33421.
    campestris, 33685 to 33687.
    rapa, 33682 to 33684.
Bridal bouquet. See *Porana paniculata*.
Broad bean (Bolivia), 33458.
Bromelia sp., 33930.
Brunsfelsia mutabilis, 33931.
Bucare. See *Erythrina poeppigiana*.
Buettneria cordata. See *Byttneria cordata*.
Bunchosia costaricensis, 33740, 33741.
Byttneria cordata, 33932.

Cabulla. See *Furcraea tuberosa*.
Caesalpinia bonducella. See *Guilandina bonduc*.
    melanocarpa, 33933.
Cajan indicum, 33779.
Cajun. See *Furcraea cubensis*.
Calamus roxburghii, 33561.
Calceolaria sp. See *Fagelia* sp.
Caldcluvia paniculata, 33853.
Calliandra bicolor. See *Anneslia parviflora*.
    tweedii. See *Anneslia tweedii*.
Campomanesia sp., 33934.
Caper. See *Capparis spinosa*.
Capparis spinosa, 33512.
Capriola dactylon, 33606, 33617, 34066.
Capsicum annuum, 33351, 33637.
Caragana arborescens, 33755.
    pygmaea, 33756.
Carica papaya, 33502, 34064, 34065.
Carissa arduina. See *C. bispinosa*.
    bispinosa, 33764.
Carrot (Sweden), 33688.
Caryophyllus jambos, 33777.
Cassia bicapsularis, 33935.
    corymbosa, 33936.
    glauca, 33562.
    grandis, 33781, 33782.
    occidentalis 33937.

Castilla guatemalensis, 33743, 33744.
  nicoyensis, 33784.
Castor bean. See *Ricinus communis.*
Cebil blanco. See *Piptadenia rigida.*
  colorado. See *Piptadenia cebil.*
Celtis tala, 33938.
Cenchrus biflorus, 33601 to 33603.
Centrosema brasilianum. See *Bradburya brasiliana.*
Cephalophora glauca. See *Helenium glaucum.*
Ceratonia chilensis. See *Prosopis chilensis.*
Cerbera thevetia, 33563, 33939.
Cereus quisco, 33824 to 33827, 33829 to 33832.
Chaetochloa intermedia, 33614.
  lutescens, 33615.
Chaetospermum glutinosum, 24591, 25089, p. 83.
Chamissomneia luzulaefolia, 33940.
Chañar. See *Gourliea decorticans.*
Chequehue. See *Crinodendron patagua.*
Cherimoya. See *Annona cherimola.*
Cherry, Antonovka, 33658.
  Belotelaja, 33661.
  Dolgonsha, 33660.
  Kniazna Severa, 33657.
  Kislakovka, 33659.
  laurel. See *Laurocerasus lusitanica.*
  (Russia), 33657 to 33665.
  Steclarka, 33663.
    seedlings, 33664, 33665.
  Visloucha, 33662.
Chick-pea (Mexico), 33647.
Chorisia insignis, 33941.
  speciosa, 33942.
Chrysobalanus icaco, 33791.
Chrysopogon montanus, 33445.
Chusquea quila, 33667.
Cicer arietinum, 33647.
Citharexylum barbinerve, 33943.
Citronella grass. See *Cymbopogon* spp.
Citrullus vulgaris, 33627, 33630, 33631.
Citrus sp., 34041.
  aurantium sinensis, 33279, 33788.
  decumana, 34068, 34069.
  limonum, 33761.
  nobilis, 33391, 34040.
Clematis. See *Clematis* spp.
Clematis grewiaeflora, 33765.
  microphylla, 33766.
  orientalis, 33358.
Cleome sp., 33648.
Clerodendrum fallax, 33767.
  thomsonae, 33768.
Clover (Russia), 33714.
  red, giant (Austria), 33736.
Cocos campestris, 33944.
  yatay, 33762.
Colletia spinosa. See *C. spinosissima.*
  spinosissima, 33855, 33856.
Colliguaja integerrima, 33945.
Colutea persica buhsei, 33314.
Combretum fruticosum, 33946.
  laxum. See *C. fruticosum.*
  loeflingii. See *C. fruticosum.*
  micropetalum. See *C. fruticosum.*
Congea velutina, 34070.
Conyza ageratoides, 33947.
  chilensis, 33948.
Cordia corymbosa, 33949.
  monosperma. See *C. corymbosa.*
Coridochloa cimicina, 33610.
Corn (Bolivia), 33448 to 33457.
  (British Guiana), 33282 to 33284.
  (China), 33459, 34053.
  Creole, 33282 to 33284.
  Cuzco, 33448 to 33451.
  (German East Africa), 33429, 33430
  (Maryland), 33672.
Cornus capitata, 33769.
  koenigi, 33359.
Corypha elata, 33564.
Cotoneaster pyracantha, 33501.
Cotton, Assil, 33639.
  Chantaburi, 33352.
  (China), 33797 to 33799.
  Karunganni, 33737.
  Krung Kao or Kroong Kow, 33353.
  Nakon Sritamaraj or Sridhamaraj, 33354.
  (Siam), 33352 to 33354.
  Tellapatti, 33738.
Couraivo. See *Elaeodendron australe.*
Crape myrtle. See *Lagerstroemia speciosa.*
Crataegus sp., 33653.
  pyracantha. See *Cotoneaster pyracantha.*
Crinodendron patagua, 33950.
Crotalaria medicaginea, 33604, 33605.
Cryptostegia grandiflora, 33405, 33565.
Cucumis melo, 33491, 33513, 33542, 33590, 33625, 33629, 33632, 33703, 34055 to 34062.
Cucurbita pepo, 33511, 33541

Cumin. See *Cuminum cyminum.*
Cuminum cyminum, 33646.
Cupania vernalis, 33951.
Curcuma longa, 34087.
Currajong shrub, 33507.
Currant, black (Chile), 33910.
(Siberia), 33521.
See also *Ribes* spp.
Custard-apple. See *Annona reticulata.*
Cymbopogon citratus, 33786, 34085.
nardus, 33787.
Cynodon dactylon. See *Capriola dactylon.*
Cypella gracilis. See *Phalocallis gracilis.*
herberti. See *Phalocallis herberti.*

Dalbergia lanceolaria. See *Amerimnon lanceolarium.*
nigra. See *Amerimnon nigrum.*
sissoo. See *Amerimnon sissoo.*
Dammara alba, 34071.
Daubentonia tripetii, 34020.
Daucus carota, 33688.
Deckenia nobilis, 34079.
Deguelia timoriensis, 33546, 33566.
Derris scandens. See *Deguelia timoriensis.*
Desmodium sp. See *Meibomia* sp.
Devil's-herb. See *Plumbago scandens.*
Dioscorea spp., 33350, 33802 to 33806.
bonariensis, 33952.
Diospyros kaki, 33753.
embryopteris. See *D. peregrina.*
peregrina, 33567.
Doekoe. See *Lansium domesticum.*
Dolichandra cynanchoides, 33953.
Dombeya calantha. See *Assonia calantha.*
Durio zibethinus, 34072, 34073.

Eccremocarpus scaber, 33808.
Echinodorus floribundus. See *E. grandiflorus.*
grandiflorus, 33954.
Elaeagnus umbellata, 33770.
Elaeodendron australe, 33771.
Elephant creeper. See *Argyreia nervosa.*
Eleusine coracana, 33427.
Elm, Karagatch, 34063.
Emblic myrobalan. See *Phyllanthus emblica.*
Embothrium coccineum, 33852, 33864.
Emu bush, 33503.
Enargea radicans, 33865, 33866
Enkianthus himalaicus, 33772.
Enterolobium contortisiliquum, 33955.
timbouva. See *E. contortisiliquum.*
Epilobium sp., 33836.
Eriobotrya japonica, 33778.
Eriochloa polystachya, 33620.
Eryngium rostratum, 33868.
Erythrina sp., 33957.
crista-galli, 33956.
micropteryx. See *E. poeppigiana.*
poeppigiana, 33673.
"Espino." See *Acacia cavenia.*
Esparsette. See *Onobrychis cristata.*
Ethulia bidentis. See *Flaveria bidentis.*
Eucalyptus incrassata, 33433.
Eucryphia cordifolia, 33869, 33870.
Eugenia jambos. See *Caryophyllus jambos.*
mato, 33958.
pungens, 33959.
temu, 33705.
Euonymus latifolius, 33499.
yedoensis, 33773.
Eupatorium atrorubens, 34043.
salvia, 33809.
Excoecaria marginata, 33960.
Exochorda korolkowi, 33313.
Exogonium purga, 33961.

Fagara hyemalis, 33962.
Fagelia sp., 33801.
Falcata sp., 33621.
Fenugreek. See *Trigonella foenum-graecum.*
Feronia elephantum, 33633.
Feroniella lucida, 28799, 28800, p. 84.
oblata, 29341, p. 84.
Festuca gigantea, 33607.
Ficus subtriplinervis, 33963.
Firmiana colorata, 33568.
Flaveria bidentis, 33871.
contrayerba. See *F. bidentis.*
Flourensia campestris, 33964.
thurifera, 33872.
Furcraea cubensis, 33493.
foetida, 33492.
gigantea. See *F. foetida.*
tuberosa, 33668.

Galega officinalis, 33719.
Galium chilense, 33873.
chonoense. See *G. chilense.*
Garcinia livingstonei, 33569.
Garugandra amorphoides. See *Gleditsia amorphoides.*
Gaura fruticosa. See *Combretum fruticosum.*

Geranium (England), 33509.
Ginseng. See *Panax quinquefolium*.
Gleditsia amorphoides, 33965.
Gnaphalium sp., 33810.
Goat's-rue, 33719.
Gochnatia rigida, 33874.
Gomphrena rosea. 33966.
Gossypium spp. ,33352, 33737, 33738.
    barbadense, 33639.
    hirsutum, 33353, 33797.
    nanking, 33354, 33798, 33799.
Gothofreda coerulea, 33967.
    solanoides, 33968.
Gouania corylifolia, 33969.
Gourd, wax. See *Benincasa hispida*.
Gourliea decorticans, 33970.
Grape, Albillo, 33536.
        rosado, 33534.
    Âsmi, 33399.
    Bocal, 33530.
    Bocalilla, 33527.
    Forralba, 33529.
    Fresa, 33531.
    Guadalupe, 33523.
    Jubeili, 33401.
    Kâsûfi-inti, 33402.
    Khudud-ul-Banat, 33396.
    Leonada, 33528.
    Macabeo de Sitjes, 33462.
    Malvasia gruesa, 33533.
    Marquesa, 33524.
    Momagastro, 33460.
    Moscatel comun, 33535.
        negro, 33526.
    Mukhkh-ul-Baghl, 33398.
    Negrilla, 33537.
    Ojo de liebre (negro), 33463.
    Polop negro, 33538.
    Rayadao Melonera, 33532.
    Rojal, 33539.
    Rojo de chella, 33525.
    Shakaifi, 33393.
    (Spain), 33376 to 33378, 33460 to 33464, 33523 to 33539.
    Sumoy (negro), 33464.
    Suri, 33394.
    (Syria), 33392 to 33403.
    Tifafihi ahmar, 33392.
    Ubeidi, 33395, 33403.
    Uva de Casta, 33377, 33378.
        Embarque, 33376.
    Vinatera San Juan, 33461.
    Zeini, 33397, 33400.
Grass, Bermuda. See *Capriola dactylon*.
    blue, pitted. See *Andropogon pertusus*.
    citronella. See *Cymbopogon* spp.
    Queensland blue. See *Andropogon sericeus*.
    spider. See *Panicum divaricatissimum*.
Greigia sp., 33702.
    landbecki, 33875, 33876.
Ground-cherry. See *Physalis pubescens*.
Guettarda uruguensis, 33971.
Guilandina bonduc, 33570.
Guizotia abyssinica, 33422.

Hamelia patens, 33571.
Hawthorn. See *Crataegus* sp.
Hedysarum esculentum, 33303.
    flavescens, 33304.
    hedysaroides, 33306.
    microcalyx, 33305.
    obscurum. See *H. hedysaroides*.
    songaricum, 33307.
Heimia salicifolia, 33991.
Helenium glaucum, 33854.
Helianthus thurifer. See *Flourensia thurifera*.
Hepetis sp., 33867.
Hérisson. See *Onobrychis crista-galli*.
Heterophragma adenophyllum, 33547, 33572.
Heteropteris umbellata, 33972.
Hibiscus esculentus. See *Abelmoschus esculentus*.
Hiptage benghalensis, 33573.
Holcus sorghum, 33281, 33424, 33425, 33518, 33638, 33669, 33670, 33739.
Holoptelea integrifolia, 33574.
Honeysuckle. See *Lonicera maackii*.
Hordeum sp., 33691.
Horse-radish tree. See *Moringa oleifera*.
Hursinger. See *Nyctanthes arbor-tristis*.
Hyalis argentea. See *Plazia argentea*.

Iboga. See *Tabernanthe iboga*.
Icaco. See *Chrysobalanus icaco*.
Ilama. See *Annona purpurea*.
Impatiens spp., 33593, 33594.
Indian-elm. See *Holoptelea integrifolia*.
Indigofera glandulosa, 33446.
    linifolia, 33608, 33642.
Iodina rhombifolia. See *Jodina rhombifolia*.
Ipomoea purga. See *Exogonium purga*.

Iris drepanophylla, 33360.
Iseilema laxum, 33447.

Jacobinia coccinea, 33973.
    suberecta, 33976.
Jalap. See *Exogonium purga.*
Jasmine. See *Jasminum beesianum.*
Jasminum beesianum, 33500.
Jodina rhombifolia, 33974.
Juglans australis, 33975.
    regia, 33516.
Jujube. See *Ziziphus jujuba.*
Justicia ventricosa, 33977.

Kafir orange. See *Strychnos spinosa.*
Karagatch elm. See *Ulmus* sp.
Katappa. See *Terminalia catappa.*

Lagerstroemia reginae. See *L. speciosa.*
    speciosa, 33548, 33575.
Lansium domesticum, 34074.
Larch (Russia), 33317 to 33319, 33645.
Lardizabala biternata, 33877.
Larix dahurica, 33319.
    sibirica, 33317, 33318, 33645.
Lass hastata, 33978.
Lathyrus sp., 33911.
    magellanicus, 33979.
    mulkak, 33290.
    sativus, 33404.
Laurel cherry. See *Laurocerasus lusitanica.*
Laurelia aromatica. See *L. sempervirens.*
    sempervirens, 33878, 33879.
Laurocerasus lusitanica, 33434.
Lemon, Malta, 33761.
Leucaena glauca, 33348, 33980.
Lilium dauricum, 33310.
Lily (Russia), 33310.
Lingue. See *Persea lingue.*
Linum sp., 33807.
    usitatissimum, 33406.
Linseed. See *Linum* spp.
Litchi chinensis, 34075.
Lithrea aroeirinha. See *L. molleoides.*
    caustica, 33697, 33698, 33880, 33881.
    molleoides, 33981.
    venenosa. See *L. caustica.*
Lomatia ferruginea. See *Tricondylus ferrugineus.*
Lonicera maackii, 33435.
Loquat (Italy), 33778.
Lühea divaricata. See *Alegria divaricata.*
Luzuriaga radicans. See *Enargea radicans.*
Lycopersicon esculentum, 33624, 33704.

Maba sp., 33983.
Macadamia ternifolia, 33912.
Macfaydenia dolichandra. See *Dolichandra cynanchoides.*
Madia sativa, 33884.
Maguey, Manila. See *Agave cantala.*
Maihuen. See *Maihuenia poeppigii.*
Maihuenia poeppigii, 33828.
Mallee. See *Eucalyptus incrassata.*
Maloo. See *Bauhinia vahlii.*
Mammea americana, 33469.
Mammee. See *Mammea americana.*
Mandevilla suaveolens, 33984.
Mangifera indica, 34076.
Mango. See *Mangifera indica.*
Mangold, 33674 to 33681.
Maple (India), 33588.
    (Russia), 33316.
  See also *Acer* spp.
Maqui. See *Aristotelia chilensis.*
Maravilla. See *Flourensia thurifera.*
Martynia lutea, 34006.
Maytenus boaria, 33885.
Meconopsis cambrica, 33361.
    paniculata, 33362
    racemosa, 33363.
Medicago arabica inermis, 23283, 23284, p. 83.
    falcata, 33465.
    hispida aculeata, 33364.
        denticulata, 33712.
        reticulata, 33711.
    radiata, 33302.
    sativa, 33760.
Meibomia sp., 33591.
Melilotus elegans, 33365.
    messanensis, 33366.
Menodora integrifolia, 33985.
Mentha piperita, 33349.
Milleria contrayerba. See *Flaveria bidentis.*
Millet, pearl. See *Pennisetum glaucum.*
    ragi. See *Eleusine coracana.*
Mimosa adpressa, 33986.
    glomerata, 34044.
    juliflora. See *Prosopis chilensis.*
    sepiaria, 33987.
Molle. See *Schinus terebinthifolius aroiera.*
Momordica spp., 33628, 33634.
Moringa oleifera, 33576
    pterygosperma. See *M. oleifera.*
Morrenia odorata, 33988.
Mucuna gigantea, 33794.
Muermo. See *Eucryphia cordifolia.*
Musa sp., 33689.

Muskmelon, Bronceado, 33494.
    (Chile), 33703.
    (Dominican Republic), 34056 to 34062.
    (Guadeloupe), 33542.
    (India), 33590, 33625, 33629, 33632.
    (Spain), 33494, 33513.
Mustard (India), 33421.
Myrceugenia fernandeziana, 33887.
Myrobalan, emblic. See *Phyllanthus emblica.*
Myroxylon salzmanni, 33989.
Myrtus spp., 33718, 33888 to 33896, 33907 to 33909.
    fernandeziana. See *Myrceugenia fernandeziana.*
    meli, 33897.
    molinae. See *Ugni molinae.*

Nageia andina, 33990.
Nepal trumpet flower. See *Beaumontia grandiflora.*
Nephelium litchi. See *Litchi chinensis.*
    lappaceum, 34077.
Nephrosperma vanhoutteana, 34080.
Nesaea salicifolia. See *Heimia salicifolia.*
Nicotiana longiflora, 33708, 33709.
    tabacum, 33671, 33707.
Nierembergia frutescens, 33992.
Niger seed. See *Guizotia abyssinica.*
Nightshade. See *Solanum* spp.
Notra. See *Embothrium coccineum.*
Nut, Queensland. See *Macadamia ternifolia.*
    soap. See *Sapindus emarginata.*
Nyctanthes arbor-tristis, 33577.

Oat, huskless (China), 33690.
    (Russia), 33289.
    rustproof (New Zealand), 33644.
Okra. See *Abelmoschus esculentus.*
Olea foveolata, 33783.
Olive. See *Olea foveolata.*
Onobrychis caput-galli, 33291.
    crista-galli, 33292.
    cristata, 33666.
    laconica, 33294.
    sativa, 33514.
        montana, 33293.
    viciaefolia. See *O. sativa.*
Opuntia spp., 33321 to 33335.
    camuessa, 33334.
    cardona, 33340.
    (France), 33321 to 33335, 33340.
Opuntia gosseliniana, 33326.
    gymnocarpa, 33329.
    hyptiacantha, 33321.
    myriacantha, 33323.
    pilifera, 33324.
    rastrera, 33333.
    robusta larreyi, 33328.
    scheerii, 33325.
    spinulifera, 33335.
    streptacantha, 33327.
    velutina, 33332.
    vulgaris balearica, 33322.
Orange (Algeria), 33279, 33788.
    Caibé, 34040.
    (China), 33391.
Oryza sp., 34092.
Owenia cerasifera, 33578.
Oxypetalum coeruleum. See *Gothofreda coerulea.*
    solanoides. See *Gothofreda solanoides.*

Paeonia mlokosewitschi, 33336.
Palm (Argentina), 33944.
    (India), 33564.
    Maquenge, 33346.
    (Mauritius), 33347.
    (Seychelles Islands), 34079 to 34084.
Panax quinquefolium, 33792.
Panicum antidotale, 33609.
    ciliare. See *Syntherisma ciliaris.*
    cimicinum. See *Coridochloa cimicina.*
    divaricatissimum, 34048.
    effusum, 34049.
    glaucum. See *Pennisetum glaucum.*
    lutescens. See *Chaetochloa lutescens.*
    sanguinale. See *Syntherisma sanguinalis.*
    urvillianum, 33898.
Papaver somniferum, 33407.
Papaya. See *Carica papaya.*
Parkinsonia aculeata, 33993.
Paspalum royleanum, 33622.
    vaginatum, 33337.
Passiflora sp., 33785.
    laurifolia, 34088.
    pinnatistipula, 33813, 33814.
    quadrangularis, 33470.
Passion fruit. See *Passiflora* spp.
Patagonula americana, 33994.
Pavonia hastata. See *Lass hastata.*

Pea, chick. See Chick-pea.
pigeon. See *Cajan indicum*.
tree, Siberian. See *Caragana arborescens*.
Peanut (German East Africa), 33426.
Pelargonium multibracteatum, 33509.
Peltophorum vogelianum. See *Baryxylum dubium*.
Pelu. See *Sophora tetraptera*.
Pennisetum americanum. See *P. glaucum*.
cenchroides. See *P. ciliare*.
ciliare, 33611, 33612.
glaucum, 33428.
orientale, 33613.
typhoideum. See *P. glaucum*.
Peony (Russia), 33336.
Pepper (France), 34089.
red (Mexico), 33637.
(Spain), 33351.
Peppermint. See *Mentha piperita*.
Pereskia poeppigii. See *Maihuenia poeppigii*.
Persea lingue, 33442.
Persimmon (China), 33753.
Pfaffia glauca, 33995.
Phalocallis gracilis, 33996.
herberti, 33997.
Philibertella riparia, 33998.
Phoenicophorium borsigianum, 34081.
sechellarum. See *P. borsigianum*.
Phyllanthus emblica, 33579.
Physalis pubescens, 33811.
Phytolacca dioica, 33999.
Pigeon-pea. See *Cajan indicum*.
Pimenta acris, 33716.
Pine. See *Pinus* sp.
Pinus sp., 33650.
leucodermis, 33466.
Piper nigrum, 34089.
Piptadenia cebil, 34000.
rigida, 34001.
Pistache, Bronte, 33441, 33751.
Pistacia atlantica, 34052.
vera, 33441, 33751.
Pithecoctenium squalus, 34002.
Plazia argentea, 34003.
Plum, Claudia, 33515.
See also *Prunus* sp.
Plumbago scandens, 34004.
Podocarpus andina. See *Nageia andina*.
Polymnia sonchifolia, 34005.
Pomelo. See *Citrus decumana*.
Pongam pinnata, 33580.
Pongamia glabra. See *Pongam pinnata*.
Poppy. See *Papaver somniferum*.
Porana paniculata, 33549.
Potato (Austria), 33471 to 33491.
of the air, 33350.
Prickly pear. See *Opuntia* spp.
Prosopis chilensis, 33550, 34007.
juliflora. See *P. chilensis*.
nigra, 34008.
strombulifera, 33900.
Prunus sp., 33789 and 33790.
chamaecerasus. See *P. fruticosa*.
domestica, 33515.
insititia, 33436.
fruticosa, 33659, 33663, 33665.
×*avium*, 33657.
×*cerasus*, 33658, 33661, 33662, 33664.
×*domestica*, 33660.
lusitanica. See *Laurocerasus lusitanica*.
prostrata, 33367.
spinosissima, 33312.
Pterogyne nitens, 34009.
Pumpkin (Guadeloupe), 33541.
Putranjiva roxburghii, 33581.
Puya chilensis, 33901 to 33903.

Queensland nut. See *Macadamia ternifolia*.
plum. See *Owenia cerasifera*.
Quebrachia lorentzii. See *Schinopsis lorentzii*.
Quebracho, colorado. See *Schinopsis lorentzii*.
red, 33796.
Quila. See *Chusquea quila*.
Quisco. See *Cereus quisco*.

Rambutan. See *Nephelium lappaceum*.
Raspberry (Australia), 33505.
(India), 33344.
Rattan. See *Calamus roxburghii*.
Ribes sp., 33899, 33910.
dikuscha, 33368, 33521.
procumbens, 33369.
Rice, perennial, 34092.
Ricinus communis, 33408 to 33417.
Rivina humilis, 34010.
Rollinia parviflora, 34011.
Rosa spp., 33371 to 33373, 33592.
xanthina, 33370.

Roscheria melanochaetes, 33347, 34082.
Rose (India), 33592.
  See also *Rosa* spp.
Rose-apple. See *Caryophyllus jambos.*
Rosewood. See *Amerimnon nigrum.*
Rubber, African, 33405.
  Central American. See *Castilla* spp.
  (Costa Rica), 33784.
  (Guatemala), 33743, 33744.
Rubus spp., 33504, 33505, 34045.
  ellipticus, 33342.
  hawaiensis, 33793.
  lasiocarpus, 33344.
  moluccanus, 33343.
  racemosus, 33345.
Ruellia lorentziana, 34012.
  tuberosa, 33713.
Ruprechtia fagifolia, 34013.

Sainfoin. See *Onobrychis sativa.*
Salix chilensis, 34014.
  humboldtiana. See *S. chilensis.*
Saloa hieronymi, 33928.
Salpichroa rhomboidea, 34015.
Samohú. See *Chorisia insignis.*
Sapindus emarginata, 33582.
Sarcostemma riparium. See *Philibertella riparia.*
Schinopsis lorentzii, 34016.
Schinus dependens. See *S. huigan.*
  huigan, 33823.
  terebinthifolius aroiera, 34017.
Schlechtendalia luzulaefolia. See *Chamissomneia luzulaefolia.*
Schmidelia edulis. See *Allophylus edulis.*
Scleria sp., 33338.
Scutia buxifolia. See *Adolia buxifolia.*
Senecio sp., 33812.
Serjania exarata, 34018.
Sesame. See *Sesamum orientale.*
Sesamum indicum. See *S. orientale.*
  orientale, 33418 to 33420.
Sesban paulensis, 34019.
Setaria intermedia. See *Chaetochloa intermedia.*
Siberian pea tree. See *Caragana arborescens.*
Sida bonariensis, 34021.
Sissoo. See *Amerimnon sissoo.*
Soap nut. See *Sapindus emarginata.*
Solanum spp., 33706, 34055.
  aculeatissimum, 33506.
  bonariense, 34022.
Solanum macranthum, 33583.
  tuberosum, 33471 to 33491.
Sophora alopecuroides, 33374.
  macrocarpa, 33857 to 33859.
  tetraptera, 33861 to 33863, 33904.
Sorghum (British East Africa), 33518.
  (German East Africa), 33281, 33424, 33425.
  (Panama), 33669, 33670.
  shallu, 33638.
  (Sudan), 33739.
Sorghum vulgare. See *Holcus sorghum.*
Soymida febrifuga, 33584.
Spinach, wild (Russia), 33308.
Spinacia tetrandra, 33308.
Spiraea chamaedryfolia, 33774.
  foxii, 33775.
Spondias cytherea, 33636.
  dulcis. See *S. cytherea.*
  mangifera. See *S. pinnata.*
  pinnata, 33635.
Sporobolus indicus, 33649
Squash, "Mogango" (Brazil), 33511.
Statice macrophylla, 33693.
Stenolobium stans, 34023, 34024.
Sterculia colorata. See *Firmiana colorata.*
Stevensonia grandifolia. See *Phoenicophorium borsigianum.*
Stigmaphyllon jatrophaefolium, 34026.
  lingulatum, 33585.
  littorale, 34027.
  periplocaefolium. See *S. lingulatum.*
Stilpnopappus speciosus. See *Strophopappus speciosus.*
Stizolobium sp., 34067.
Strophopappus speciosus, 34025.
Strychnos spinosa, 33341.
Sweetsop. See *Annona squamosa.*
Syntherisma ciliaris, 33619.
  sanguinalis, 33616.
Syringa meyeri, 23032, p. 83.

Tabernanthe iboga, 34090.
Tacsonia pinnatistipula. See *Passiflora pinnatistipula.*
Tagetes minuta, 34028.
Talauma mutabilis, 34078.
Tavola nut. See *Terminalia catappa.*
Tecoma stans. See *Stenolobium stans.*
Terminalia bellerica, 33586.
  catappa, 33655.
  trifoliata, 34029.
Thespesia populnea, 33587.

Thevetia nereifolia. See *Cerbera thevetia*.
Tilia rubra begonifolia, 33375.
Tipuana speciosa. See *T. tipu*.
  tipu, 34030.
Tobacco (Chile), 33707 to 33709.
  Shiraz, 33671.
Tomato (Australia), 33624.
  (Chile), 33704.
Tournefortia elegans, 34031.
Trevoa trinervia, 33815, 33816.
Tricondylus ferrugineus, 33883.
Tricuspidaria dependens. See *Crinodendron patagua*.
Trifolium sp., 33714.
  pratense, 33736.
Trigonella caerulea, 33295 to 33297.
  cretica, 33298.
  foenum-graecum, 33299.
  gladiata, 33300.
  polycerata, 33301.
Triticum aestivum, 33286 to 33288, 33423, 33752.
  durum, 33285.
  vulgare. See *T. aestivum*.
Trumpet flower, Nepal. See *Beaumontia grandiflora*.
Turmeric. See *Curcuma longa*.
Turnip (Sweden), 33682 to 33687.
  Swedish. See *Brassica campestris*.
Tusca. See *Acacia moniliformis*.

Ugni molinae, 33905, 33906.
Ulmus sp., 34063.
Undetermined, 33346, 33503, 33618, 33695, 33696, 33700, 33701, 33796, 33817, 33818, 33860, 33882, 33886, 34038, 34084.

Vallesia cymbaefolia. See *V. glabra*.
  glabra, 34032.
Vanillosmopsis polycephala, 34033.
Verbesina arnottii, 34034.
Vernonia nitidula, 34035.
  speciosa. See *Strophopappus speciosus*.
  squamulosa, 34036.
Verschaffeltia splendida, 34083.
Viburnum burejaeticum, 33776.
Vicia faba, 33458.
Vigna spp., 33519, 33520.
  lutea, 33795.
  retusa. See *V. lutea*.
Vitex montevidensis, 34037.
Vitis vinifera, 33376 to 33378, 33392 to 33403, 33460 to 33464, 33523 to 33539.

Walnut (Argentina), 33975.
  (China), 33516.
Watermelon (India), 33627, 33630, 33631.
Wax gourd. See *Benincasa hispida*.
We fruit. See *Spondias cytherea*.
Wheat, Pistoria, 33752.
  (Russia), 33285 to 33288.
  (Russian Turkestan), 33423.
Willow (Argentina), 34014.
Wood-apple. See *Feronia elephantum*.

Xanthosoma sagittaefolia, 34091.
Xylosma salzmanni. See *Myroxylon salzmanni*.

Yam (Chile), 33802 to 33806.
  (Guatemala), 33350.
Yang-taw. See *Actinidia chinensis*.
Yatay. See *Cocos yatay*.

Zanthoxylum hyemale. See *Fagara hyemalis*.
Zea mays, 33282 to 33284, 33429, 33430, 33448 to 33457, 33459, 33672, 34053.
Ziziphus sp., 33522.
  jujuba, 34054.
  sativa. See *Ziziphus jujuba*.
Zornia diphylla, 33623.

ADDITIONAL COPIES of this publication may be procured from the SUPERINTENDENT OF DOCUMENTS, Government Printing Office, Washington D. C., at 15 cents per copy

Issued June 3, 1914.

U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF PLANT INDUSTRY.

WILLIAM A. TAYLOR, *Chief of Bureau.*

INVENTORY
OF
SEEDS AND PLANTS IMPORTED
BY THE
OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM JULY 1 TO SEPTEMBER 30, 1912.

(No. 32; Nos. 34093 TO 34339.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1914.

BUREAU OF PLANT INDUSTRY.

Chief of Bureau, WILLIAM A. TAYLOR.
Assistant Chief of Bureau, L. C. CORBETT.
Officer in Charge of Publications, J. E. ROCKWELL.
Chief Clerk, JAMES E. JONES.

FOREIGN SEED AND PLANT INTRODUCTION.

SCIENTIFIC STAFF.

David Fairchild, *Agricultural Explorer in Charge.*

P. H. Dorsett, *Plant Introducer, in Charge of Plant Introduction Field Stations.*
Peter Bisset, *Plant Introducer, in Charge of Foreign Plant Distribution.*
Frank N. Meyer and F. W. Popenoe, *Agricultural Explorers.*
George W. Oliver, *Plant Breeder and Propagator.*
H. C. Skeels and R. A. Young, *Scientific Assistants.*
Stephen C. Stuntz, *Botanical Assistant.*
Robert L. Beagles, *Assistant Farm Superintendent, in Charge of Plant Introduction Field Station, Chico, Cal.*
Edward Simmonds, *Gardener and Field Station Superintendent, in Charge of Subtropical Plant Introduction Field Station, Miami, Fla.*
John M. Rankin, *Assistant Farm Superintendent, in Charge of Yarrow Plant Introduction Field Station, Rockville, Md.*
W. H. F. Gomme, *Assistant Farm Superintendent, in Charge of Plant Introduction Field Station, Brooksville, Fla.*
Edward Goucher and H. Klopfer, *Plant Propagators.*
M. E. Batchelor, W. R. Lucas, J. E. Morrow, and C. H. Steffani, *Gardeners.*
J. H. Allison, *Expert Propagator.*
Collaborators: Aaron Aaronsohn, *Director, Jewish Agricultural Experimental Station, Haifa, Palestine;* Dr. Gustav Eisen, *California Academy of Sciences, San Francisco, Cal.;* E. C. Green, *Coroata, Maranhao, Brazil;* N. E. Hansen, *South Dakota Experiment Station, Brookings, S. Dak.;* A. C. Hartless, *Seharunpur, Botanic Gardens, Seharunpur, India;* H. Harold Hume, *Glen St. Mary, Fla.;* Barbour Lathrop, *Chicago, Ill.;* William S. Lyon, *Gardens of Nagtajan, Manila, P. I.;* William H. Raynes, *Tallahassee, Fla.;* Joseph F. Rock, *Honolulu, Hawaii;* Miss Eliza R. Scidmore, *Yokohama, Japan;* Dr. L. Trabut, *Director, Service Botanique, Algiers, Algeria;* E. H. Wilson, *Arnold Arboretum, Jamaica Plain, Mass.*

CONTENTS.

Page.
Introductory statement........ 5
Inventory........ 9
Botanical notes and publication of new names........ 39
Index of common and scientific names........ 41

ILLUSTRATIONS.

Page.
PLATE I. Sudan grass (*Holcus sorghum*) at the Chico Field Station........ 10
II. Branch of a seedling Chinese jujube (*Ziziphus jujuba* Miller) which has fruited in Texas........ 10
III. The Medjhool date, from the Tafilelt region, Morocco........ 24
IV. A Tientsin variety of Pai Ts'ai, or Chinese cabbage (*Brassica pekinensis* (Lour.) Skeels)........ 24
V. Plants of sesame (*Sesamum orientale* L.), 3 to 4 feet tall, at the Yarrow Field Station, Rockville, Md........ 30

INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM JULY 1 TO SEPTEMBER 30, 1912 (NO. 32; NOS. 34093–34339).[1]

INTRODUCTORY STATEMENT.

This inventory covers a period during which no agricultural explorer was in the field and all the collections were made either by collaborators, American diplomatic or consular officials, representatives of other nations, or interested amateurs who are scattered over the world and who send in on their own initiative seeds of the plants which interest them and which they believe may prove to be of value to this country.

The most interesting introductions included in this inventory, so far as one can judge from the descriptions received with them, may be summarized as follows:

No. 34131, a small-fruited variety of peach from Guadeloupe, French West Indies, sent by Mrs. F. T. F. Du Mont, which has more perfume and savor than the Florida peento; No. 34132, *Sorbus tianschanica*, from central Asia, a shrub or small tree suited to the cool semiarid regions of the United States; No. 34134, *Prunus sibirica*, a species related to the apricots of eastern Siberia, to be used for breeding purposes; Nos. 34140 to 34145, six species of junipers from Russian Turkestan, for use in afforestation work in the arid West; No. 34147, *Medicago coronata*, from Jerusalem, a species found on rocky mountain sides, which reseeds with ease, for use in extensive breeding experiments being carried on at various places throughout the country; No. 34153, *Carissa ovata*, from New South Wales, a drought-resistant species with small fruit, which will interest the hundreds of Florida planters who are growing the *Carissa grandiflora;* No. 34156, a species of Omphalea, a tree of the Euphorbiaceæ, which bears edible nuts, slightly resembling the cob nut, according to the literature; No. 34157, *Persea lingue*, from Chile, a possible stock for the avocado; No. 34161, *Strychnos gerrardi*, from Portuguese

---

[1] A record of new or little-known seeds and plants, procured mostly from abroad, for distribution to experimenters in appropriate locations throughout the United States and its possessions.

This inventory is intended for distribution to the agricultural experiment stations and to the more important private cooperators.

East Africa, an edible-fruited relative of the Kafir orange, *S. spinosa*, which has proved adapted to southern Florida and of which fruiting specimens are now growing at Miami; No. 34163, *Antidesma bifrons*, a euphorbiaceous shrub from Natal, with edible fruit, suited possibly to southern Florida; No. 34177, *Boscia undulata*, the tree which furnishes wood for wagon makers in South Africa, the ash of the South African forests; Nos. 34184 to 34194, 11 varieties of cotton collected by various field men connected with the Bureau of Agriculture at Manila; Nos. 34195 to 34197, three Algerian clovers cultivated and selected by Mr. G. W. Oliver; Nos. 34199 to 34205, seven varieties of mangos from Mauritius, three grafted and four which are said to come true from seed; No. 34210, a species of edible-fruited Spondias from San Jose, Costa Rica, which is propagated by cuttings; No. 34213, suckers of the famous Medjhool date, from the Tafilelt region of southeastern Morocco, the first suckers of this remarkable date to be imported into this country, where thousands of seedlings are already growing as the result of previous introductions of the seeds; No. 34214, sent by Dr. Yamei Kin, seed of a Chinese corn having a waxy endosperm, similar to a previous introduction which has been used in making many interesting hybrids; No. 34216, a remarkably delicate, practically odorless strain of Pai ts'ai, or Chinese cabbage, which has proved of unusual promise for late summer planting, owing to its extremely rapid growth; No. 34219, the doum palm of Upper Egypt and the Sudan, the seeds of which are employed by manufacturers in Germany as a substitute for vegetable ivory; No. 34252, a native Caucasian beet from the shores of the Black Sea, for the use of beet breeders; No. 34254, the Bolivian black walnut, a variety of *Juglans nigra* which may grow in our tropical possessions; No. 34257, wild teosinte from Durango, Mexico, which will interest the corn breeders, for it is said to cross readily with maize; No. 34259, *Echium auberianum*, a new blue variety of this striking ornamental, which deserves to be tested in the Southern States, its 10-foot flower stems making it a most striking landscape plant; No. 34263, *Bischofia javanica*, a remarkable ornamental tree from Java, of which specimens now growing in northern Florida give an indication of its being a desirable shade tree for that State; Nos. 34264 to 34272, a collection of plums, apricots, and filberts made in Rome by Dr. Gustav Eisen, some of which he believes superior to any varieties with which he is familiar in California; No. 34289, Cambodia cotton, a variety which in southern India has proved superior to any American strain tried there; No. 34291, the *Ta ma* hemp from Hankow, China, a tall-growing variety that may interest Kentucky hemp growers; No. 34308, *Primula forrestii*, a new, fragrant, yellow primrose found in western Yunnan at altitudes of 9,000 to 11,000 feet; No. 34309, the ywapurú, a new plumlike fruit from Paraguay; No. 34330, *Baryxylum inerme*, a new shade tree with showy yellow flowers, for trial near the shore in southern Florida, Porto Rico, and Panama; and No. 34339, one of the best flavored Hawaiian papayas, bearing flowers of both sexes on the same tree, to be used for grafting purposes in Florida.

Mr. S. C. Stuntz is responsible for the general form of the inventory and, under the supervision of the committee on scientific orthography of this Bureau, for the correctness of the nomenclature, while the identifications of the seeds and the notes on geographic distribution were furnished by Mr. H. C. Skeels, the data sent in by correspondents and travelers being assembled by Miss May Riley.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., February 10, 1914.

INVENTORY.

34093 and 34094.

From Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture, Manila. Received July 1, 1912.

Seeds of the following; quoted notes by Mr. Barrett:

34093. Flacourtia sepiaria Roxburgh. **Bitongol.**

"A small shrub bearing purplish, sweetish fruit about the size of a small cherry, edible."

Distribution.—Dry jungles along coasts in Bengal and Ceylon and eastward through the Malay Archipelago to the Philippines.

34094. Parkia timoriana (DC.) Merrill. **Cupang.**
(*P. roxburghii* Don.)

"A large, leguminous, ornamental forest tree, indigenous to the Philippines."

"This tree reaches a height of 35 to 40 meters and a diameter of 150 to 180 centimeters. The bole is 15 to 20 meters in length, strongly buttressed, but otherwise fairly regular. The crown, about one-half the height of the tree, is large, vase shaped, widespreading, and open. It is preeminently a tree of rather open and second-growth forests where the dry season is pronounced and is very scarce or entirely absent in those parts where a pronounced dry season is wanting. It prefers good soils and requires a great deal of light and therefore is found in the parang (patches of grass alternating with forest) or on the edges of untouched forests or in open places of dipterocarp forests. The bark is 6 to 12 millimeters in thickness, brown to russet brown in color, often gray where exposed to the sunlight. It has a roughened appearance due to shallow vertical broken lines and is covered with small, brown, corky pustules. The inner bark is dark brownish red in color. The leaves are alternate, doubly compound, large, and fernlike in appearance; the leaflets about 0.5 centimeter in length and whitish beneath. The tree is bare of leaves from one to six weeks during the dry season. The large sapwood is creamy white when fresh and then has a very disagreeable odor. On exposure it discolors rapidly. The heartwood is light brown but is found only in trees 60 centimeters or more in diameter. The wood is light and soft and decays rapidly. The wood is known as *cupang* and has the following uses: Light and temporary construction; packing boxes; wooden soles of shoes; matches. It is known to be good for paper pulp." (*H. N. Whitford, Forests of the Philippines, p. 39–40.*)

34095 and 34096. Persea americana Miller. **Avocado.**
(*P. gratissima* Gaertn. f.)

From Quillota, Chile. Presented by Mr. M. Amacleo, Estacion de Patolojia Vejetal, Servicios de Policia Sanitaria Vejetal, Santiago, Chile. Received July 5, 1912.

Cuttings of the following:

34095. "*Fruto verde.*" **34096.** "*Fruto negro.*"

34097. MANGIFERA INDICA L. **Mango.**

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, Department of Agriculture. Received August 25, 1911. Numbered July 3, 1912.

"*Caribe.* One side golden yellow to orange yellow, the other side scarlet. Nearly no fiber. Large, very good. Flesh orange yellow, peculiar flavor. Very beautiful and highly esteemed. Comes perfectly true from seed. For hot, rather dry regions." (*Wercklé.*)

See No. 30972 for previous introduction.

34098 and 34099. STIZOLOBIUM spp.

From Parakimedi Estate, Madras, India, through D. Hooper, esq., Office of Economic Botanist, Calcutta, India, at the request of Mr. C. V. Piper. Received June 24, 1912.

Seeds of the following; quoted notes by Mr. Piper:

34098. "*Dukka chikkudu* (Telugu). Seeds oblong, brown and gray marbled."

34099. "Seeds ashy gray, with a few black, cloudy splotches. Probably *S. cinereum.*"

34100. ANNONA RETICULATA L. **Custard-apple.**

From Tehuantepec, Mexico. Presented by Mr. W. W. Miller, Los Angeles, Cal. Received July 6, 1912.

34101. ERIOBOTRYA JAPONICA (Thunb.) Lindl. **Loquat.**

From Rome, Italy. Presented by Dr. Gustav Eisen, California Academy of Sciences, San Francisco, Cal. Received July 2, 1912.

"Seeds taken from fruit as large as average apricots and very fine in taste." (*Eisen.*)

34102 to 34104. VIGNA SINENSIS (Torner) Savi. **Cowpea.**

From Alexandria, Egypt. Presented by Mr. D. S. Fish, secretary, Alexandria Horticultural Society. Received July 2, 1912.

Seeds of the following; quoted notes by Mr. Fish:

34102. *Lubia shami* (Syrian). Without eye spot.
34103. *Lubia shami* (Syrian). Brown eyed.
34104. *Lubia beladi* (Country). Black eyed.

34105. MEDICAGO RIGIDULA CINERASCENS (Jord.) Rouy & Fouc. **Alfalfa.**

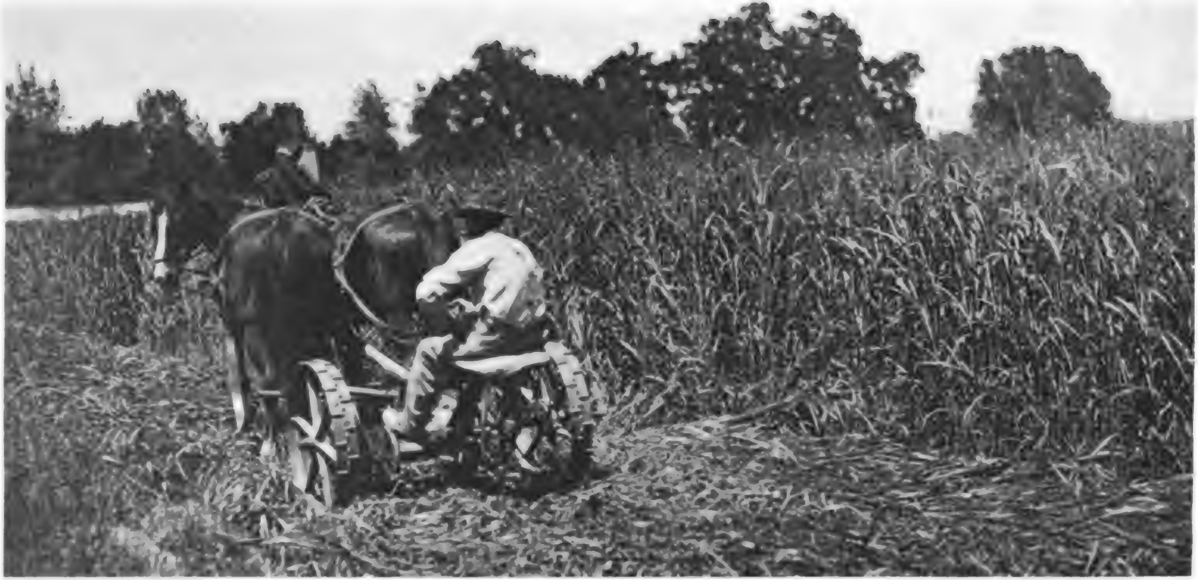
From Kharput, Turkey. Presented by Mr. William W. Masterson, American consul. Received July 9, 1912.

34106. DOLICHOS LABLAB L. **Bonavist bean.**

From Pacasmayo, Peru. Presented by Mr. A. D. Selby, botanist, Ohio Agricultural Experiment Station, Wooster, Ohio, who procured it from Mr. B. H. Kauffman. Received July 8, 1912.

"Yuna bean. The sample received is mostly a white-seeded variety, but there is also a brown-seeded variety intermixed."

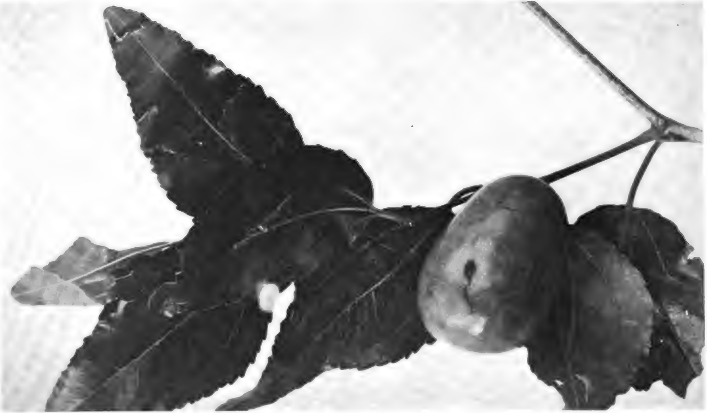
PLATE I.



SUDAN GRASS (HOLCUS SORGHUM) AT THE CHICO FIELD STATION. (S. P. I. No. 34114.)

Apparently the wild or half-domesticated form of our cultivated sorghums, crossing readily with them and entirely lacking the undesirable rootstocks of the ordinary Johnson grass, to which it is related. It promises to be a valuable fodder grass in California, Texas, and the Gulf States. Nine-tenths of an acre at Brownsville, Tex., planted March 5, mowed May 14, yielded hay weighing 7,080 pounds. (Photographed by McKee, July 1, 1913, Chico, Cal.)

Google



BRANCH OF A SEEDLING CHINESE JUJUBE (ZIZIPHUS JUJUBA MILLER) WHICH HAS FRUITED IN TEXAS. NATURAL SIZE. (S. P. I. NO. 22683.)

Seeds of the "Bottle jujube" were distributed in 1907. This fruit, from one of these seedlings, sent by Mr. F. T. Ramsey, of Austin, Tex., is the largest fruited variety yet in bearing in this country. The flesh is coarse, the skin tough, and the quality only fair. See S. P. I. 34162 for the description of a different variety. (Office photograph No. 10109, August 13, 1912.)

34109. PANICUM BARBINODE Trinius. **Para grass.**

From the Philippine Islands. Presented by Mr. Henry L. Hungerford. Grown at Stock Farm at Alabang, Rizal, near Manila. Received June 3, 1912.

"The seed came originally from Ceylon, where the grass is known as *Panicum muticum*. It closely resembles Para grass but does not seem to have equal forage value." (*C. V. Piper.*)

Distribution.—First described from Brazil; apparently generally distributed in the Tropics.

34110. HORDEUM VULGARE TRIFURCATUM (Schlecht.) Beaven. **Barley.**

From China. Presented by Rev. Horace W. Houlding, South Chihli Mission, Tai Ming Fu, North China. Received November 13, 1911.

34111 and 34112. OPUNTIA spp. **Prickly pear.**

From C. Lerdo, Durango, Mexico. Presented by Dr. Elswood Chaffey. Received at the Plant Introduction Field Station, Chico, Cal., May 16, 1912. Numbered July 15, 1912.

Three cuttings of each of the following:

34111. OPUNTIA VILIS Rose.

Distribution.—On the footslopes and plains in the vicinity of Zacatecas in central Mexico.

34112. OPUNTIA AZUREA Rose.

Distribution.—The northeastern part of the Province of Zacatecas in central Mexico.

34113. GEVUINA AVELLANA Molina. **Avellano.**

From Maquehue, Temuco, Chile. Presented by Mr. D. S. Bullock, Lapeer, Mich. Received July 12, 1912.

A beautiful white-flowered proteaceous tree with large rust-colored leaves and coral-red fruit the size of a large cherry. The stone, or nut, is conical, and the kernel has somewhat the taste of hazelnuts; hence the name avellano.

See S. P. I. No. 19115 for previous introduction.

34114. HOLCUS SORGHUM L. **Sudan grass.**

(*Sorghum vulgare* Pers.)

From Khartum, Egypt. Presented by Mr. W. A. Davie, Inspector of Agriculture, for director, Department of Agriculture and Forests, Sudan Government. Received July 12, 1912.

"This is apparently identical with S. P. I. No. 25017. The plant is an annual, closely resembling ordinary Johnson grass in appearance but entirely lacking the rootstocks which make that plant undesirable. Sudan grass is apparently the wild or half domesticated form of our cultivated sorghums, and it crosses readily with the various varieties of sorghum. It has a stem much finer than Amber sorghum and slightly coarser than timothy." (*C. V. Piper.*)

For an illustration of Sudan grass growing at the Chico Field Station, see Plate I.

34116. MEDICAGO FALCATA L.

Collected in the vicinity of Semipalatinsk, Siberia. Purchased from Mr. G. T. Miroshnikov. Received July 11, 1912.

"This is seed of the ordinary 'Sholteek' and is imported for the special purpose of naturalizing this important wild forage plant in various sections of the Northwest, especially on grazing lands in the Dakotas, Montana, Wyoming, Colorado, and Idaho. It thrives better in sod-grass regions than in bunch-grass sections. See also remarks made under No. 32389." (*Frank N. Meyer.*)

34117. LITCHI CHINENSIS Sonnerat. **Litchi.**

(*Nephelium litchi* Cambess.)

From Soochow, China. Presented by Mr. N. Gist Gee. Received July 15, 1912.

34118. IRIS TENUISSIMA Dykes. **Iris.**

From Pitt River region, Goose Valley, Shasta Co., Cal. Presented by Miss Alice Eastwood. Received July 17, 1912.

34119. ERIOBOTRYA JAPONICA (Thunb.) Lindl. **Loquat.**

From Rome, Italy. Presented by Dr. Gustav Eisen, California Academy of Sciences, San Francisco, Cal. Received July 16, 1912.

"This shipment contains seeds of both the pear-shaped and apple-shaped loquats of exceptional size, no fruit being less than 2 inches in diameter and some more. They are the best I have seen this year." (*Eisen.*)

34120 and 34121. ZEA MAYS L. **Corn.**

From Andahuaylas, Peru. Presented by Mr. W. Henry Robertson, American consul general, Callao, who procured this corn from Mr. Edward Sinclair, a former clerk in the consular office. Received July 16, 1912.

34120. White.

34121. Yellow.

"Mr. Sinclair states that the yellow is of a sweeter taste than the white, which is more farinaceous, both kinds, however, being highly valued here for culinary purposes. Its grain is unusually large." (*W. Henry Robertson.*)

34122. CLAVIJA ORNATA Don.

From Trinidad, British West Indies. Presented by Mr. P. Carmody, director, Department of Agriculture. Received July 16, 1912.

"An evergreen tree attaining a height of 10 to 12 feet, flowers orange colored; racemes drooping, 3 or 4 inches long; leaves long-lanceolate acute, spiny toothed; petioles 2½ inches long." (*Extract from Nicholson's Dictionary of Gardening.*)

Distribution.—The island of Trinidad and in the vicinity of Caracas in Venezuela.

34123. SCHEFFLERA ACTINOPHYLLA (Endl.) Harms. **Queensland umbrella tree.**

(*Brassaia actinophylla* Endl.)

From Wellington Point, near Brisbane, Queensland, Australia. Presented by Mr. James Pink. Received July 19, 1912.

"This is best known as the Queensland umbrella tree, which is a truly descriptive term for the growth of the foliage. It grows 20 to 30 feet high and flowers on a terminal spike." (*James Pink.*)

"This araliaceous tree, known as "*Pinankaral*" to the natives of Queensland, has large leaves, set like umbrella ribs, at the top of the numerous stems. The wood is soft, close grained, and dark in color, and not durable." (*Maiden, Useful Native Plants.*)

Distribution.—The valley of Endeavor River and along the coast in Queensland, Australia.

34124. ANANAS SATIVUS Schult. f. **Pineapple.**

From Bowen Park, Brisbane, Queensland, Australia. Presented by Mr. William Soutter, secretary and manager, Queensland Acclimatization Society. Received July 17, 1912.

"Some interesting developments may be looked for with these seeds, as they are from a smooth *Cayenne* crossed with pollen from the *Ripley Queen.* The fruit, weighed with the top, turned the scales at 11 pounds. During the past 30 years I have raised upward of 30,000 plants from seed. These have been, for the greater part, discarded as useless. The selected types now number about a dozen, and these show constancy, and some possess high qualities. The smooth pineapple is an exceptionally shy seeder and responds tardily to pollination. Not so the roughs. They are readily pollinated and produce abundance of seed." (*Soutter.*)

34125. CALOPHYLLUM INOPHYLLUM L. **Mast wood.**

From Madras, India. Presented by Mr. José de Olivares, American consul. Received July 19, 1912.

"An evergreen tree which in some localities, especially when near the sea, attains a considerable size. It is indigenous throughout the western peninsula, Orissa, Ceylon, Burma, and the Andaman Islands and is distributed to the Malay Peninsula, Polynesia, Australia, and the islands of eastern Africa. There appears to be little doubt that the true gum tacamahaca, formerly attributed by some writers to *C. inophyllum*, is obtained neither from that nor from any other Indian tree. But when wounded, the stem, and also the fruits of the mast wood, exude a small quantity of bright-green, pleasantly scented resin, soluble in alcohol, which is not collected or made any use of at the present day. Rheede observes, however, that it is emetic and purgative, so that it would appear to have been formerly of medicinal value. From the seeds is expressed a greenish-colored oil known as pinnay or domba oil. According to some, the yield is as great as 60 per cent by weight, and the oil is said to congeal when cooled below 50 degrees. The seeds are collected twice a year—in August and again in February. The oil possesses a disagreeable odor and flavor, but is fairly extensively used for burning and is valued, especially in Polynesia, as an external application in rheumatic affections. The chief centers of production are Bombay, Goa, Travancore, Tinnevelli, Tanjore, Puri, etc. It is said to fetch a little more than half the price of coconut oil and is fairly extensively exported from India to Burma. The timber is moderately hard and close grained and by Sebert (Les Bois de la Nouvelle Caledonia) is believed to be magnificent for cabinet work. All the species, and in particular the poon spar, *C. tomentosum*, are highly serviceable for masts, spars, railway sleepers, machinery, etc., but for these purposes are much less in demand than formerly." (*Sir George Watt, Commercial Products of India.*)

34126. TRITICUM AESTIVUM L. **Wheat.**
(*T. vulgare* Vill.)

From La Guayra, Venezuela. Presented by Mr. Thomas W. Voetter, American consul. Received July 23, 1912.

"The grower of this wheat stated that it came to Venezuela originally from the Canary Islands and that it has been found to be the best variety known here to resist dry weather. The sample sent was from a field that was not irrigated and received no rainfall from the time of sowing until harvested. The name of the variety was not known to the grower." (*Voetter.*)

34127 to 34129.

From Soochow, China. Presented by Mr. N. Gist Gee. Received July 22, 1912.

Seeds of the following; quoted notes by Mr. Gee:

34127. HORDEUM VULGARE L. **Barley.**

"Used to make a sirup."

34128. TRITICUM AESTIVUM L. **Wheat.**
(*T. vulgare* Vill.)

"Used to make flour."

34129. HORDEUM VULGARE L. **Barley.**

"Eaten as rice is by the Chinese."

34130. CASTILLA ELASTICA Cerv. **Central American rubber.**

From Misantla, Vera Cruz, Mexico. Presented by Mr. C. A. Purpus. Received July 19, 1912.

34131. AMYGDALUS PERSICA L. **Peach.**
(*Prunus persica* Stokes.)

From Guadeloupe, French West Indies. Presented by Mrs. F. T. F. Du Mont. Received July 25, 1912.

"In Florida there is a peach which ripens in May and which is locally called the 'pinto [peento] peach.' I have never seen this peach below Rockledge. There is a peach here that is very like it in shape and taste that grows and bears well and stands the heat. Its shape is long, with a decided point at the apex. The stems are slightly indented in the fruit. The fruit is easily detached when ripe. The pulp is juicy, homogeneous, and not stringy. It has more perfume and savor than the Florida peach. It is a freestone and peels easily. It is larger that the Florida peach, the long diameter averaging 1½ inches, the transverse 1¼ inches. It is round—not flattened. It resists decay well, even in this heat, from 76 degrees, our coolest nights, to 90 degrees always in the afternoons, some of the fruit lasting after being gathered for four days. It seems to me this peach would do well in southern Florida. The stones I am sending were taken from the fruit between July 9 and 14." (*Mrs. Du Mont.*)

34132 to 34145.

From Novospassko, Syzran-Riazan R. R., Russia. Presented by Mr. A. D. Woeikov. Received July 24, 1912.

Seeds of the following:

34132. SORBUS TIANSCHANICA Ruprecht. **Mountain ash.**
(*Pyrus tianschanica* Franch.)

"A rowan occurring in the higher mountain regions of central Asia. Generally of shrubby growth, though occasionally found to be a small tree. Of value as an ornamental garden and park tree for the cool, semiarid sections of the United States." (*F. N. Meyer.*)

34133. ASPARAGUS TRICHOPHYLLUS Bunge. **Asparagus.**

"An asparagus of twining habits found in sandy and alkaline deserts in central Asia. Of value, possibly, in breeding work." (*F. N. Meyer.*)

34134. PRUNUS SIBIRICA L. **Plum.**

"A species of Prunus, closely related to the apricots, occurring in eastern Siberia, Manchuria, and Mongolia. May be of value in breeding experiments." (*F. N. Meyer.*)

34132 to 34145—Continued.

34135. CRATAEGUS sp. **Hawthorn.**

"A haw occurring on stony places along water courses in central Asia. May be of value as a stock for pears in the drier sections of the United States." (*F. N. Meyer.*)

34136. CRATAEGUS sp. **Hawthorn.**

"*Dolana.*"

34137. ACER GINNALA SEMENOVII (Reg. and Herd.) Pax. **Maple.**

"A maple of shrubby growth, generally found on dry, rocky places in central Asia. Of value as an ornamental tall shrub or small tree in the drier parts of the United States." (*F. N. Meyer.*)

34138. ROSA sp. **Rose.**

"*Flor. roseis.*"

34139. ROSA sp. **Rose.**

"*Jt Murut.*"

34140. JUNIPERUS PSEUDOSABINA Fischer and Meyer. **Juniper.**

"'*Haz artsha.*' A juniper growing on very dry, sun-burned mountain slopes in Russian Turkestan. Much sought after as fuel. May be valuable for afforestation purposes in the arid and semiarid sections of the United States." (*F. N. Meyer.*)

34141. JUNIPERUS COMMUNIS OBLONGA (Bieb.) Loudon. **Juniper.**

Distribution.—A form of juniper with longer leaves and smaller oblong fruits found in the trans-Caucasian region of southeastern Russia.

34142. JUNIPERUS sp. **Juniper.**

"*Saur artsha.*"

34143. JUNIPERUS sp. **Juniper.**

34144. JUNIPERUS sp. **Juniper.**

"*Kara artsha.*"

34145. JUNIPERUS sp. **Juniper.**

"*Sary artsha.*"

34147 to 34151. MEDICAGO spp.

From Jerusalem, Palestine. Presented by Mr. E. F. Beaumont. Received July 19, 1912.

Seeds of the following:

34147. MEDICAGO CORONATA (L.) Gaertn.

"I am very much impressed with the very hardy character of this. It is found in all localities and especially on rocky mountain sides where the soil is only a few inches deep on the rock. This year the later rains were practically a failure, a fact which further shows its drought-resisting qualities. Although its seeds are small, it reseeds with ease." (*Beaumont.*)

34148. MEDICAGO RUGOSA Desr.

Distribution.—The countries bordering on the Mediterranean from Spain through Italy and Greece to Asia Minor and Syria, and in northern Africa.

34149. MEDICAGO MARINA L.

34150. MEDICAGO MINIMA (L.) Grufb.

34151. MEDICAGO ROTATA Boiss.

34152. ILEX PARAGUARIENSIS St. Hil. **Yerba maté.**

From Buenos Aires, Argentina. Presented by Mr. C. F. Mead, Caballero, Paraguay. Received July 16, 1912.

See No. 29097 for previous introduction and description.

34153. CARISSA OVATA R. Brown.

From Sydney, New South Wales. Presented by Mr. J. H. Maiden, Botanic Gardens. Received July 30, 1912.

"Warialda, New South Wales. Growing at the foot of hills of a volcanic nature, subjected to periodical droughts, early flowering and late in fruiting. Fruits small, owing to the very extreme drought during the past two years." (*John Luke Boorman, collector.*)

"This little bush produces a very pleasant fruit, which is both agreeable and wholesome. It is like a sloe, egg-shaped, and about half an inch long. It exudes a viscid, milky juice and contains a few woody seeds. 'I can testify that the fruit is both agreeable and wholesome, and I never knew an instance of any evil consequences, even when they were partaken of most abundantly.' (*Tenison-Woods.*)" (*Maiden, Useful Native Plants.*)

34154 and 34155. IPOMOEA BATATAS (L.) Poir. **Sweet potato.**

From Auckland, New Zealand. Presented by A. Yates & Co. Received July 31, 1912.

One tuber of each of the following:

34154. Red skin. **34155.** White skin.

"Varieties of South Sea Island sweet potatoes." (*Yates & Co.*)

34156. OMPHALEA sp. (?)

From Bocono, Colombia, South America. Presented by Mr. W. O. Wolcott, Brooklyn, N. Y. Received July 26, 1912.

"I can give you no definite information about these nuts except what the natives told me, as I bought them in the town at the foot of the mountains and did not see the trees. The natives told me they grew high up in the mountains where it is quite cold—but not freezing—probably 7,000 to 8,000 feet or more, as Bocono, where I got them, is about 5,000 feet. They say the trees grow very large, 12 to 18 inches in diameter and 50 to 60 feet high, and are very prolific in nuts. They call the nuts by two names—*nueces* (nuts) and *pan del pobre* (poor people's bread). I have traveled for the last 20 years all over Venezuela and Colombia and have never seen them except at this one place. It rains a good deal in those mountains for about six months of the year, from April to September or October, the rest of the year being dry. I got these last March, just at the end of the season. I should judge they would make fine stock feed in meal; in fact, the natives eat them, and they told me they fatten their hogs on them finely, as the shells are thin and very brittle. The meats appear to have much oil. I find them rather hard when dry. When I got them the meats were softer than chestnuts when first gathered." (*Wolcott.*)

34157. PERSEA LINGUE (Ruiz and Pav.) Nees. **Lingue.**

From Santa Ines, Chile. Presented by Mr. Salvador Izquierdo. Received August 31, 1911. Numbered August 1, 1912.

"The bark of the lingue is used on a large scale for tanning leather, and the leaves are poisonous to animals. As a medicine, the bark is a powerful astringent and was formerly exported in considerable quantities." (*Espinoza, Plantas Medicinales de Chile.*)

See No. 24208 for previous introduction.

34158 to 34160.

From Honolulu, Hawaii. Presented by Dr. E. V. Wilcox, Hawaii Agricultural Experiment Station. Received August 2, 1912.

34158. DIOSCOREA SATIVA L. **Yam.**

34159. DIOSCOREA PENTAPHYLLA L. **Yam.**

34160. SMILAX SANDWICENSIS Kunth. **Uhi.**

"A tall, slender climber with a woody, unarmed stem and tuberous rhizomes which are eaten by the Hawaiians in times of scarcity."

34161. STRYCHNOS GERRARDI N. E. Brown. **Quaqua.**

From Province of Mozambique, Portuguese East Africa. Presented by the Inspector of Agriculture. Received August 5, 1912.

"A small tree, 3 to 10 meters high, without thorns and with exceedingly variable leaves. Fruit one celled, globose, 5 to 7 centimeters in diameter, glaucous, glabrous, often spotted, with a hard shell and numerous flat seeds lying in acidulous, edible pulp. Abundant from Natal to Inhambane, especially on the sandy soils." (*Sim, Forest Flora of Portuguese East Africa.*)

34162. ZIZIPHUS JUJUBA Miller. **Jujube.**
(*Z. sativa* Gaertn.)

From Washington, D. C. Presented by Mr. Leslie Reynolds, superintendent, U. S. Botanic Garden, Washington, D. C., through Mr. Frank N. Meyer. Received August 2, 1912.

"A large-fruited variety of the jujube found growing in the United States Botanic Garden. Has successfully withstood severe freezes." (*F. N. Meyer.*)

For an illustration of a seedling Chinese jujube which has fruited in Texas, see Plate II.

34163 to 34179.

From Durban, Natal. Presented by Dr. J. Medley Wood, Durban Botanical Gardens. Received July 29, 1912.

Seeds of the following:

34163. ANTIDESMA BIFRONS Tulasne.
(*A. venosum* Meyer.)

"A euphorbiaceous shrub or small tree 5 to 15 feet in height, having a wide distribution through central East and West Africa. The smooth, dark-red fruit, one-half inch long or less, is eaten by natives and children. It is not very palatable and probably might be injurious if eaten in quantity." (*Sim, Forest Flora of Cape Colony.*)

34164. BAPHIA RACEMOSA (Hochst.) Baker. **Violet pea.**

"An erect shrub or small-branched tree with ascending branches from Natal. It is easily distinguished from all leguminous Cape shrubs in having simple, unifoliate, ovate-lanceolate leaves. It has ornamental, white, strongly violet-scented flowers with an orange spot at the base of the standard and is known in Natal as the violet pea. Wood too small to be used for timber but, if cut in winter, peeled at once, and seasoned, makes good implement handles." (*Sim, Forest Flora of Cape Colony.*)

34163 to 34179—Continued.

34165. Capparis citrifolia Lamarck.

"A straggling shrub 5 to 8 feet high or with climbing branches where protected. Abundant in eastern Cape Colony and also in Natal. Decoction of the roots used in local and native medicine." (*Sim, Forest Flora of Cape Colony.*)

34166. Carissa grandiflora (E. Meyer) DC. **Amatungulu.**

34167. Warneria thunbergia (L. f.) Stuntz.

(*Gardenia thunbergia* L. f., Supplementum Plantarum Systematis Vegetabilium, p. 162, 1781.)

Seeds of this white-flowered rubiaceous shrub were received under the name *Gardenia thunbergia* L. f. In publishing this name, the younger Linnæus cited *Thunbergia capensis* Montin (Kongl. Vetensk. Acad. Handl. Stockholm, vol. 34, p. 288, pl. 11, 1773). Montin, however, merely characterized the genus Thunbergia, with neither binomial nor citations. The specific name given by Linnæus filius is therefore the earliest and should be adopted. The reason for using the generic name Warneria for the plants usually referred to the genus Gardenia is explained under *Warneria augusta* Stickman, S. P. I. No. 30498, in Bulletin No. 242, Bureau of Plant Industry, p. 14, 1912.

"A small, much-branched tree, 8 to 15 feet high, with a smooth, white, unarmed stem up to 9 inches in diameter. Leaves very variable. Flowers terminal, solitary, strongly scented, large, white, and attractive. Fruit woody, very hard, oval or oblong, 2 to 4 inches long, 2 inches in diameter, many seeded, remaining on the trees for several years, increasing in size with age, and, finally, either smooth or roughened, but usually white. The strongly scented white flower makes this a favorite garden flowering tree, and it is also used as a stock for grafting the double *Gardenia florida* (*Warneria augusta* Stickman) upon. The wood is hard, heavy, and strong, and used for making tools, etc." (*Sim, Forest Flora of Cape Colony.*)

34168. Ipomoea albivenia (Lindl.) Sweet.

Distribution.—A perennial shrubby climber with large white flowers, found in the Kalahari region of South Africa and in Natal.

34169. Tricalysia floribunda (Harvey) Stuntz.

(*Kraussia floribunda* Harvey, Hooker's Journal of Botany, vol. 1, p. 21, January, 1842.)
(*Coffea kraussiana* Hochstetter, Flora, vol. 25, p. 237, April, 1842.)
(*Tricalysia kraussiana* (Hochst.) Schinz, Mem. Herb. Boiss., vol. 10, p. 67, 1900.)

Seeds of this rubiaceous shrub from Natal were received under the name *Kraussia floribunda* Harvey. This name, published in January, 1842, was based on Krauss's No. 121, which was also the type of *Coffea kraussiana* Hochstetter, published in April, 1842. As the plant is now considered to belong to the genus Tricalysia and the combination *Tricalysia floribunda* seems never to have been published, it is necessary to adopt it now.

"Small tree up to 20 feet in height and 1 foot in diameter, with fluted stem. Leaves evergreen. Fruit a small, black berry. Wood heavy, hard, not used." (*Sim, Forest Flora of Cape Colony.*)

34170. Maba natalensis Harvey.

"A tree 20 to 50 feet high, with horizontal, densely foliaged branches. Fruit one-half inch in length, acorn shaped in the green calyx cup, yellow when ripe, rather succulent, though hardly edible. Frequent on the coast through Natal. Usually on the sand dunes or behind them. Rarely large enough for use." (*Sim, Forest Flora of Cape Colony.*)

34163 to 34179—Continued.

34171. Pterygocarpus floribundus (Meyer) Stuntz.
(*Dregea floribunda* Meyer, Commentariorum de Plantis Africae Australioris, vol. 1, fasc. 2, p. 199, 1837.)

Seeds of this asclepiadaceous plant from South Africa were received under the name *Dregea floribunda* Meyer. The generic name Dregea had, however, been used by Ecklon and Zeyher in June, 1836 (Enumeratio Plantarum Africae Australiae Extratropicae, p. 350) for certain umbelliferous plants now considered to belong to Peucedanum. It is therefore necessary to adopt the generic name Pterygocarpus, published by Hochstetter in 1843 (Flora, vol. 26, bd. 1, p. 78). The type species of Hochstetter's genus is *P. abyssinicus*, a plant congeneric with *P. floribundus*.

34172. Oncoba kraussiana (Hochst.) Planchon.

Distribution.—A much-branched shrub with large white flowers found in the woods in the vicinity of Durban, in Natal, South Africa.

34173. Osteospermum moniliferum L.

Distribution.—A diffuse shrub with bright-yellow flowers found along the coast of South Africa from Natal to Cape Colony.

34174. Oxyanthus pyriformis (Hochst.) Skeels.
(*O. natalensis* Sond.)

See S. P. I. No. 31856 for previous introduction.

34175. Pavetta revoluta Hochst.

"A large shrub or small tree, smooth, free flowering, and apparently confined to the coast. On the coast dunes from Port Elizabeth to Natal, scarce, and of no economic use." (*Sim, Forest Flora of Cape Colony.*)

Introduced for use as an ornamental in Florida.

34176. Psychotria capensis (Eckl.) Vatke.

"Usually a shrub, sometimes a tree, up to 10 to 15 feet high, with 3 to 6 inches stem diameter, and with crooked and forked timber. A common Natal shrub of no economic use." (*Sim, Forest Flora of Cape Colony.*)

Introduced for use as an ornamental in Florida.

34177. Boscia undulata Thunberg. **White ironwood.**
(*Toddalia lanceolata* Lam.)

"A large evergreen tree, often 2 to 5 feet in diameter, with a clean, tall stem in high forests; frequent also as a bush or small, spreading tree in scrub forests. Flowers from September to December, according to locality and season; fruit ripens in autumn; 8,000 dry fruits weigh 1 pound and contain about 30,000 seeds. The seeds germinate easily, and the cultivation of the tree is simple. Timber white, close grained, tough, hard, and heavy. Usually to be had sound in the mountain forests up to 2 feet diameter and with 10 to 20 rings to the inch. Used mostly by wagon makers. In toughness, it is the ash of the South African forests." (*Sim, Forest Flora of Cape Colony.*)

34178. Turraea obtusifolia Hochst.

"A free-flowering shrub, 3 to 5 feet high, common on the dunes along the coast of Cape Colony and Natal. It is never large enough to be of economic value further than its use in holding fully exposed sea dunes; its showy flowers and seeds make it worth cultivation where it will grow. Flowers during early summer, fruits in autumn." (*Sim, Forest Flora of Cape Colony.*)

34179. Turraea heterophylla Smith.

See 31863 for previous introduction.

34180. MALUS sp. **Crab apple.**
(*Pyrus* sp.)

From Jamaica Plain, Mass. Presented by Mr. Charles W. Livermore, Brookline, Mass. Received August 7, 1912.

See No. 32360 for previous introduction and description.

34181. MICROCOS LATERIFLORA L.
(*Grewia asiatica* L., Mantissa, p. 122, 1767.)

From Saff, Egypt. Presented by Mr. Alfred Bircher, The Middle Egypt Botanic Gardens. Received August 6, 1912.

Seeds of this yellow-flowered tiliaceous shrub from India were received under the name *Grewia asiatica*. The generic names Microcos and Grewia, which are recognized as congeneric, were both published in Species Plantarum, 1753, Microcos on page 514 and Grewia on page 964. Microcos having priority of publication, it is necessary to adopt it. The present species was published by Linnæus as *Grewia asiatica* in 1767, but had been previously published (Species Plantarum, p. 514, 1753) as *Microcos lateriflora*, which name it is necessary to use here.

34182. STIZOLOBIUM CINEREUM Piper and Tracy.

From Baitul, Central Provinces, India. Presented by D. Hooper, esq., Office of Economic Botanist, Botanical Survey of India Department. Received August 6, 1912.

"Locally called 'dadaball.' " (*Hooper.*)

34183. PISUM ARVENSE L. **Pea.**

From Khotan, Chinese Turkestan. Received through Mr. Frank N. Meyer, agricultural explorer for this Department, September 11, 1911. Numbered August 9, 1912.

Brownish black seeds. Picked out of S. P. I. No. 31806. See that number for remarks.

34184 to 34194. GOSSYPIUM spp. **Cotton.**

From Manila, Philippine Islands. Presented by Mr. M. M. Saleeby, Bureau of Agriculture. Received July 13, 1912.

"These seeds were collected and briefly described by several of our field men stationed in the above provinces, and the following is a description of each species or type as given by them." (*Saleeby.*)

34184. GOSSYPIUM ARBOREUM L.

"*Gapas Kinachila.* Locality, southern part of Cebu, principally in the towns of Oslob, Buljo-on, and Dalaguete. This species is planted usually as a garden or dooryard crop throughout the greater part of the province. It is grown to a greater extent in the towns mentioned above, where the fiber is used for spinning and for the weaving of cloth by primitive wooden looms. It is supposed to have been introduced by the Spaniards, but when and by whom it was introduced could not be determined. Several of the natives claim that it was introduced from China, but no definite proof is given to sustain this claim. It has been grown for at least several generations. The name, translated into English, means 'Spanish cotton.' Full-grown plants average about 2 meters in height, while isolated plants sometimes reach the height of 3½ meters. The flowers are white. On the inside of the corolla, extending from the base halfway up to the tips, the petals are purple. There are no distinct purple spots at the base of the petals, but there is a purple coloration at the base of the outside of the petals, gradually fading into white."

34184 to 34194—Continued.

34185. Gossypium hirsutum L.

"*Gapas Sanglay*. Locality, Cebu. This is one of the brown cottons of the Philippines. It is planted to a very limited extent as a garden or dooryard plant. It is supposed to have been introduced by the Spaniards, but the origin and time of its introduction could not be determined. The word 'gapas' means 'cotton' and 'sanglay' means 'mixed' or 'mixed breed' and corresponds to the Spanish word 'mestizo.' The fiber is used to a very limited extent for spinning. The leaves and immature bolls are sometimes used by the natives as a medicine for the treatment of fever. The plant averages about 1½ meters in height. The flowers are yellow, and there are no purple spots at the base of the petals."

34186. Gossypium sp.

"*Toguillo*. This is apparently the kidney cotton, or *Gossypium brasiliense*. Locality, Iloilo Province. The isolated plants are found widely distributed in Panay and other islands of the archipelago. Formerly the lint was used in several districts in Iloilo Province for weaving purposes, but since the introduction of the *Taal* species it has been almost replaced by the latter. The original as well as other data relating to its introduction could not be determined. The oldest natives declare that to their definite knowledge it has been grown in Panay for more than 40 or 50 years. How much longer before that it had been planted is only a matter of conjecture. In Iloilo it is known as 'Toguillo,' 'Guillo,' or 'Visaya.' In two or three instances the fiber of this cotton is grown for commercial purposes. In some localities it is used for making fish nets, its supposed superior strength making it more valuable than the *Taal* for that purpose. It is generally grown as a perennial shrub that attains the height of 4 to 5 meters if allowed to follow its natural habit. The leaves are 4 or 5 lobed, usually the latter, and measure 10 to 22 centimeters in diameter. The bolls are longer and narrower than those of the *Taal*, measuring 4 to 5 centimeters by 2.5 to 3 centimeters. The seeds are black and quite free from fuzz, five to nine being developed in each valve. The fiber is finer, longer, and stronger than that of the *Taal*. The flowers are yellow, with red spots at the bases of the petals. The fiber is about 3 centimeters in length. Several samples of it have lately been forwarded to firms in the United States, and the reports received were very favorable. The demand for this cotton is almost unlimited, and the price quoted was 20 cents per pound and will constantly remain 4 to 6 cents per pound above that of the middling Upland."

34187. Gossypium hirsutum L.

"*Taal*. This species was introduced into Panay about 15 years ago from the region around Taal Mountain, in Batangas Province; hence the significance of the local name. Practically speaking, this cotton is the only one grown here commercially or with any attempt at systematic planting. It is usually cultivated alternately with rice; for this, and the further fact that it is a more heavy producer of lint, its cultivation has been gradually superseding that of *Toguillo*. It is planted as a field crop in the towns of Guimbal and Miagao, of Iloilo Province, and the towns of Bugason and Valderama, of Antique Province. Its origin could not be ascertained. It is probably the same as the 'Bulac Damo,' of Batangas. A few years back the production and spinning of this kind of cotton, and also the weaving of cotton cloth from it, constituted the chief household industry of Panay. The quantities of cloth and blankets manufactured from it were, it is said, in excess of the local consumption. The introduction of the Chinese cotton yarn and cloth by the Chinese merchants during recent years has resulted in a considerable decline in the production of this and other cottons, and to-day imported Chinese cloth

34184 to 34194—Continued.

and blankets have largely superseded the stronger homemade articles. The plants attain the height of 0.8 meter to 1½ meters. The flowers are white to pink in color, and there are no color spots at the bases of the petals. The leaves are either 3 to 5 lobed, usually the former, measure 6 to 12 centimeters in diameter, and produce a pubescence on their under surfaces. The bolls are nearly spherical, averaging 4 centimeters in diameter. The prevailing number of valves per boll is four, though three to five are common. The seeds are brown and covered with fuzz. The lint measures about 2½ centimeters in length."

34188. GOSSYPIUM HIRSUTUM L.

"*Candava.* Our field man in Panay described this as being a variety of the *Taal* species mentioned above. (S. P. I. No. 34187.) He was led to this belief by the fact that the plants are apparently identical, with no difference whatever except in the color of the lint. I have not seen the plant producing this brown lint, but am inclined to think it is a separate species. The cultivation is very limited, and the production of the fiber is estimated at not more than 1 per cent of that of *Taal.*" (*Saleeby.*)

34189. GOSSYPIUM sp.

"*Gapas.* Locality, Tacloban, Leyte Province. The name means 'cotton.' It is planted merely as a garden or dooryard plant. It was introduced into Leyte Province either from Batangas or Ilocos Norte. Its fiber is used to a very limited extent for spinning. No articles of importance are made from it. The plants range from 1½ to 2½ meters in height. The flowers are yellow, and there are also purple spots at the bases of the petals. A specimen was turned over to Mr. Merrill, our botanist, for identification. He has not given a final report on it, but believes it is *Gossypium nankin.*"

34190. GOSSYPIUM sp.

"*Bulac Damo.* Our field man has not sent his report regarding this variety. Judging from the lint and seed, however, I am inclined to think it is the same as the *Taal* species of Panay." (*Saleeby.*)

34191. GOSSYPIUM HIRSUTUM L.

"This cotton is similar to *Gapas Sanglay* (S. P. I. No. 34185). The description applies to this variety in every respect, except that in the latter the leaves and bolls are slightly larger than the former. Only two plants of this variety were found, which were grown in a low and rather damp place. This variety may be the same as the regular *Gapas Sanglay* (S. P. I. No. 34185), and the large size of the bolls and leaves may be due to a more fertile soil with sufficient moisture. Locality, Cebu Province."

34192. GOSSYPIUM sp.

"*Bulac Saot-Bayo.* A kind of cotton from Batangas Province, regarding which we have no information."

34193. GOSSYPIUM sp.

"*Bulac-Cahoz.* This is apparently the same as the *Toguillo* cotton of Iloilo (S. P. I. No. 34186). The word 'cahoz' means tree, and in this case refers to the fact that this species is grown as a perennial crop."

34194. GOSSYPIUM HIRSUTUM L.

"*Bulac Saot-Pula.* From Batangas Province. This is probably the same as the *Candava* variety (S. P. I. No. 34188) of the *Taal* cotton of Iloilo. The name 'Taal' indicates that the Iloilo species must have been introduced from the region around Taal Mountain, in Batangas Province."

34195 to 34197. TRIFOLIUM spp. **Clover.**

Grown in the United States Department of Agriculture greenhouses at Washington, D. C., by Mr. G. W. Oliver, who collected the original seed in Algeria. Numbered August 9, 1912.

Seeds of the following; quoted notes by Mr. Oliver:

34195. TRIFOLIUM sp.

(Oliver No. 3.) "Makes a low growth, but abundant; seems to be annual."

34196. TRIFOLIUM ANGUSTIFOLIUM L.

(Oliver No. 13.) "Grows rapidly, annual, about 15 inches high."

34197. TRIFOLIUM PROCUMBENS L.

(Oliver No. 28.) "Very tall form."

34199 to 34208.

From Port Louis, Mauritius. Purchased from the Department of Forests and Gardens, through Mr. G. Regnard. Received August 5, 1912.

Plants of the following:

34199 to 34205. MANGIFERA INDICA L. **Mango.**

34199 to 34201. Grafted plants.

34199. *Augusta.*

34200. *Jose.*

34201. *Aristide.*

34202 to 34205. Not grafted, but keeping the qualities of the species.

34202. *Torse.*

34203. *Figet.*

34204. *Maison Rouge.*

34205. *Dauphine.*

34206. DIMOCARPUS LONGAN Lour. **Longan.**
(*Nephelium longana* Cambess.)

"Fruit small and spherical, the size of a hazelnut, smoother than the litchi, reddish, rosy, or yellow. Pulp relatively thin, translucent, very juicy, sweet, with a characteristic taste of ether. The name dragon's-eye given to this species is due to the black spot which the seed bears at the hilum." (*Capus and Bois, Produits coloniaux.*)

34207. PIMENTA ACRIS (Swartz) Kostel. **Bayberry.**

34208. PIMENTA OFFICINALIS Lindley. **Allspice.**

Distribution.—The allspice tree, found in southern Mexico and southward throughout tropical America and in the West Indies. Cultivated in the Tropics of the Old World.

34209 and 34210.

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, Muséo Nacional. Received August 10, 1912.

Cuttings of the following:

34209. SAPIUM UTILE Preuss.

34210. SPONDIAS sp. **Sismoyo.**

"*Sismoyo.* Small tree, common in hedgerows and propagated by cuttings. The fruit of the typical variety is small, oval, reddish yellow in color, and of acid taste. The jocote, jocote tronador, and sismoyo seem to be cultivated races of the same species." (*Pittier, Plantas Usuales de Costa Rica.*)

34211. AMYGDALUS PERSICA L. **Peach.**

(*Prunus persica* Stokes.)

From Soochow, China. Presented by Mr. N. Gist Gee, Soochow University. Received August 12, 1912.

"Small hardy peach." (*Gee.*)

34212 and 34213.

From Algiers, Algeria. Presented by Dr. L. Trabut, director, Service Botanique. Received August 12, 1912.

34212. PISTACIA ATLANTICA Desf. **Betoom.**

"This round-topped tree, which grows only singly and not in forests, is characteristic of the high plateaus of the Atlas Mountains. The fruits are gathered for use by the Arabs." (*Martins, Von Spitzbergen zur Sahara.*)

34213. PHOENIX DACTYLIFERA L. **Date.**

"*Medjhool.* This date comes from the Tafilelt (also written Tafilet and Tafilalet) region in southeastern Morocco. It is the finest variety in the Tafilelt country, but is unknown in America and comparatively little known in Europe, except in England and Spain, in both of which countries it brings a higher price than any other date on the market in spite of the fact that it is almost never put up in attractive form but is sold in bulk. Dates of this variety can be found in practically every grocery in Spain, where they are known as 'Datiles de Berbería.'

"The fruit is large, from 2 to 2½ inches long and from three-fourths to 1 inch thick. It is semitranslucent, dark brown in color, and has flesh rather firm in texture and of a most delicious flavor. It is much darker in color than the Deglet Noor variety and keeps much better. The dates always have the calyx (zentfa) attached to the stem end.

"The four offshoots comprised under this number were secured for Dr. L. Trabut by Si Mohammed ben Idris Fassi in the Er Reteb region, that part of Tafilelt said to produce the best quality of this well-known date, which has made the whole Tafilelt country famous.

"This gift from the Service Botanique of the Algerian Government to the Department of Agriculture marks an epoch in American date culture. These selected offshoots from the best locality in Tafilelt will not only show how this famous variety succeeds in the New World deserts, but will also make it possible to determine how truly it has been reproduced by the seedlings, some thousands of which are already growing in California." (*W. T. Swingle.*)

For an illustration of the Medjhool date, natural size, see Plate III.

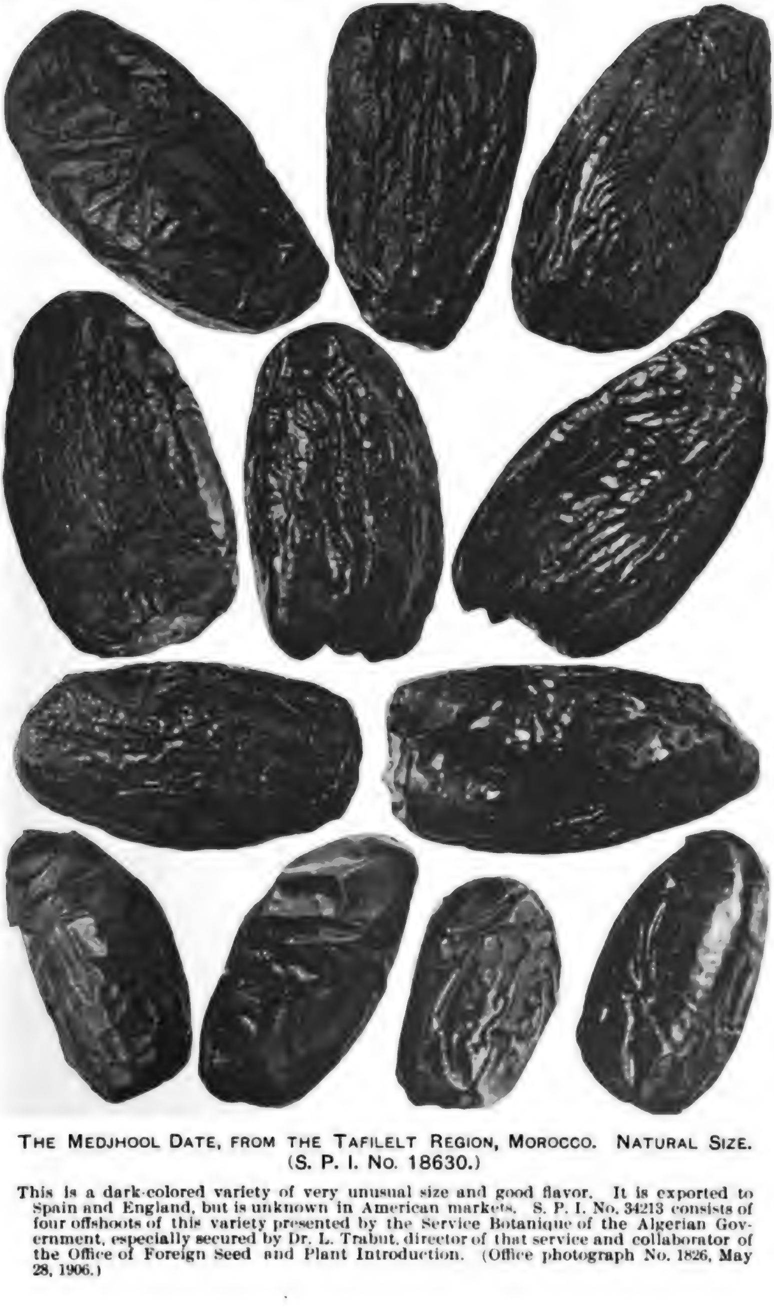
34214 to 34216.

From Tientsin, China. Presented by Dr. Yamei Kin. Received August 10, 1912. Seeds of the following; quoted notes by Dr. Kin.

34214 and 34215. ZEA MAYS L. **Corn.**

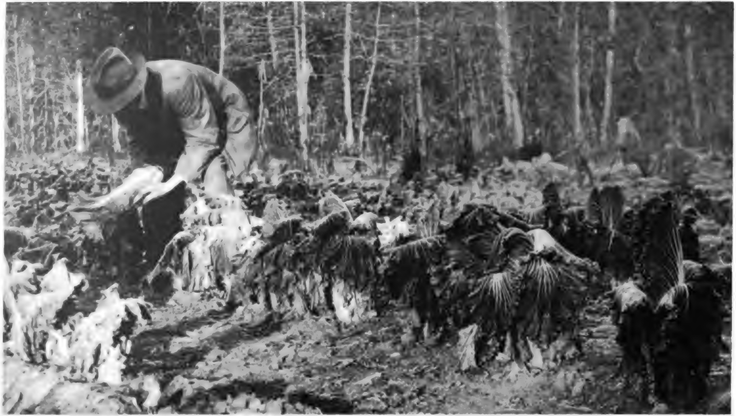
34214. "This is the northern Chinese corn which is of the waxy-endosperm kind, though perhaps somewhat different from the kind (S. P. I. No. 34053) I sent before."

34215. "This species of the above corn had become mixed with some foreign corn and shows it clearly. The Chinese say that the foreign corn grows less cob and a given area producing corn will give more grain per bushel measure, but when milled to take off the outer skin of the kernel, which it seems they do before eating it, the foreign corn has so much thicker skin that a given lot of corn does not give as much meal as the Chinese."



THE MEDJHOOL DATE, FROM THE TAFILELT REGION, MOROCCO. NATURAL SIZE. (S. P. I. No. 18630.)

This is a dark-colored variety of very unusual size and good flavor. It is exported to Spain and England, but is unknown in American markets. S. P. I. No. 34213 consists of four offshoots of this variety presented by the Service Botanique of the Algerian Government, especially secured by Dr. L. Trabut, director of that service and collaborator of the Office of Foreign Seed and Plant Introduction. (Office photograph No. 1826, May 28, 1906.)



A Tientsin Variety of Pai Ts'ai, or Chinese Cabbage (Brassica Pekinensis (Lour.) Skeels). (S. P. I. No 34216.)

This variety has been tested for several seasons in various parts of America and has proved to be a promising late vegetable. It makes a very rapid fall growth, can be planted after the summer vegetables are harvested or about the time turnips are sown, and makes a long, narrow head before freezing weather. (Photographed by Crandall, No. 13540, December, 1913, Chevy Chase, Md.)

34214 to 34216—Continued.

34216. Brassica pekinensis (Lour.) Skeels. **Pai ts'ai.**

"Fine Chinese cabbage seed. The people here plant thinly, either in rows, and then pull up the weak sprouts, or scatter over a space and then transplant. The latter method is said to yield the best plants, though for a while the young shoots appear to suffer; yet when the autumn weather comes on and they are well manured the transplanted shoots will make better growth. The plants must be manured heavily when about 8 or 10 inches high—not sooner, or they will burn out, as they say, and not later, or they will not make the growth before cold weather sets in. To get the extra-fine close heads, tie up the leaves when they are pretty well grown, so that the leaves which are loose and long will not fall away from the center and become frost-bitten. The plants should be planted not less than 2 feet apart, in rows that have at least 3 feet space between, as the cabbages need a good deal of room. When well grown, the average plant will weigh, after being trimmed for the market, about 8 or 9 catties; nearly 2 feet long, mostly crisp white stem, and but little green leaf. I do not know how much nourishment there may be in it, but it is the main staple of the diet of the people here in the north during the winter. With plenty of coarse whole-wheat flour, maize, and cabbage, the people make a good growth certainly here."

For an illustration of a field of Chinese cabbage as grown at Chevy Chase, Md., see Plate IV.

34217 and 34218.

From McCale Sana, Lumbwa, British East Africa. Presented by Mrs. Ernest Smith. Received August 12, 1912.

Seeds of the following:

34217. (Undetermined.)

"Wild coffee."

34218. Phoenix sp.

"These wild dates are all growing on the river banks; some are growing in the river itself. I fancy this is how they have managed to survive, as the Lumbwa natives have been most destructive with grass fires and burning out everything, and when they wanted a new piece of ground to cultivate they would set fire to the forest as the easiest way of clearing the ground they wanted to use." (*Smith.*)

34219. Hyphaene thebaica (L.) Martius. **Doum palm.**

From Hamburg, Germany. Presented by Mr. Robert P. Skinner, American consul general. Received August 7, 1912.

Seeds imported through the German importers, who purchase them for use in button making, in order to determine the possibility of securing large quantities of good quality doum-palm seeds for planting purposes. Immense quantities of seeds are imported through Hamburg to supply the button manufacturers of Germany with a cheap substitute for the vegetable ivory produced by the nuts of Phytelephas species.

34220 to 34249. Oryza sativa L. **Rice.**

From Manila, Philippine Islands. Presented by Mr. F. W. Taylor, Director of Agriculture, through Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received August 10, 1912.

"The yield of these rices varies from 5,000 kilos per hectare down to 3,800 kilos, but, since these yields are considerably affected by local conditions, weather, etc., there is no need, in my opinion, to give the approximate yield of each variety (the only two yielding 5,000 kilos per hectare are Nos. 579 [S. P. I. No. 34234] and 598 [S. P. I. No. 34233], most of the others running about 4,000 to 4,300 kilos per hectare). The data regarding the number of days for maturing the crop are, of course, not of much value to you, considering the vastly different conditions under which these varieties will be grown in the States and considering the variation of the individual sensitiveness of the varieties to local influences." (*Barrett.*)

Seeds of the following:

34220. *Arabon.*
34221. *Binugayan carcar.*
34222. *Baybay.*
34223. *Binatad.*
34224. *Binankero.*
34225. *Calodo.*
34226. *Cabayuran.*
34227. *Calobang.*
34228. *Cavitenang nagmaliu.*
34229. *Ilangitnon.*
34230. *Joquianan.*
34231. *Lauá.*
34232. *Mancasar.*
34233. *Manticanon.*
34234. *Manabun-ac.*
34235. *Macan Santa Rita.*
34236. *Macan Silangan.*
34237. *Magpunit.*
34238. *Minaya.*
34239. *Pilapil.*
34240. *Piniling Daniel.*
34241. *Quinaluay.*
34242. *Quinanay.*
34243. *Quinatia.*
34244. *Quiriquiri.*
34245. *San Pablo.*
34246. *Tayading pulá.*
34247. *Takilid.*
34248. *Tungcadol.*
34249. *Virgen.*

34250 and 34251.

From Saff, Egypt. Presented by Mr. Alfred Bircher, The Middle Egypt Botanic Gardens. Received August 6, 1912.

34250. DOVYALIS CAFFRA (Hook. and Harv.) Warb. **Kei-apple.**
(*Aberia caffra* Hook. and Harv.)

"A small tree, 12 to 30 feet in height, often thornless when in tree form, but exceedingly thorny when kept cut as a hedge, for which purpose it is much used, as it is impenetrable and when once established stands drought remarkably well. The seeds soon lose their vitality when kept dry, but germinate freely when fresh, and the plants are easily transplanted in the various nursery stages if not allowed to get a secure foothold, which they do rapidly. It does not succeed where frosts are regularly severe, but elsewhere requires to be cut twice a year to keep it in good hedge form and makes a dense 5-foot hedge in five years. It stands cutting to any extent, and if a hedge has been allowed to make too much headway when young and becomes open below it can be cut to the ground level and started afresh from the coppice shoots. Blanks in a hedge, if not too wide, can be remedied by interplaiting branches. The fruit is globose or depressed globose, minutely velvety, 1 to 1½ inches in diameter, bright yellow, resembling an apricot, edible, and used in preserves, but of too high flavor to be used alone. It is too sour for dessert use unless perfectly ripened under bright sunshine. It is sometimes attacked by the common peach maggot." (*Sim, Forest Flora of Cape Colony.*)

34251. CORDIA MYXA L. **Sebesten.**

"In India the tender young fruit is eaten as a vegetable and is pickled; the ripe fruit is eaten and is greedily devoured by the birds; the kernel is eaten and tastes somewhat like a filbert; that of the cultivated tree is better. The

34250 and 34251—Continued.

wood is soft and is said to have furnished the timber from which the Egyptian mummy cases were made. It is one of those used for preparing fire by friction in India. It is olive colored, grayish, or light brown, coarse grained, easy to work, strong, and seasons well; it is readily attacked by insects. It is used for boat building in India, for well curbs, gunstocks, and agricultural implements, and in Bengal for canoes. It is an excellent fuel. The weight of a cubic foot varies from 28 to 42 pounds. The viscid pulp of the fruit is used as birdlime in India, and the kernel is used for marking linen, but the mark is fugacious. The bark is extracted in ribbon-like layers and then twisted into cordage. In its lace-bark appearance the bast resembles sterculia. It is white in color, soft, and of inferior tenacity." (*Maiden, Useful Native Plants, and Dodge, Useful Fiber Plants.*)

Distribution.—A shrub or low tree cultivated in the Tropics of the Old World from Egypt through India and Cochin China to Australia.

34252. BETA sp. **Beet.**

From Artwin, in the southwestern part of the Caucasus, Russia, on the shore of the Black Sea. Presented by Mr. A. Rolloff, director, Botanic Garden, Tiflis, Caucasus, Russia. Received August 13, 1912.

Seeds of the native Caucasian beet, introduced for the work of plant breeders interested in this genus.

34253. CARISSA OVATA R. Brown.

From Brisbane, Queensland. Presented by Mr. J. F. Bailey, Botanic Gardens. Received August 15, 1912.

For previous introductions and descriptions, see S. P. I. Nos. 31111 and 34153.

34254. JUGLANS AUSTRALIS Griseb. **Walnut.**

From Sucre, Bolivia. Presented by Mr. Ernest F. Moore, British vice consul. Received August 10, 1912.

"*Boliviensis.* These are from the same species of walnut that grows in the tropical Santa Cruz, but were taken from a higher altitude, approximately 7,500 feet, and not more than 100 miles from Sucre." (*Moore.*)

34255 and 34256. VIGNA SINENSIS (Torner) Savi. **Cowpea.**

From Paramaribo, Surinam. Presented by Dr. P. J. S. Cramer, Director of Agriculture. Received August 14, 1912.

Seeds clay or buff colored. Quoted notes by Dr. J. Sack, Acting Director of Agriculture.

34255. "*Djari pesie.* Is grown as a vegetable principally."

34256. "Grown as a vegetable and also as a forage crop."

34257. EUCHLAENA MEXICANA Schrad. **Teosinte.**

From Durango, Mexico. Presented by Mr. T. C. Hamm, American consul, who obtained it from Dr. H. W. Jackson. Received August 19, 1912.

"The plant known as teosinte, or asese, which is supposed to be the antecedent of common maize, grows in some parts of the State of Durango. The plant occurs in a wild state. Only one attempt, so far as I have been able to learn, has been made to cultivate it. Two or three years ago a Mexican ranchman gathered a quantity of the seed, which he planted as a forage crop, with most excellent results. The plant flowers in the month of July and matures in November. The height attained by the plant varies greatly according to soil, climatic conditions, etc., the full-grown plant running from about 50 to 75 inches in height in this State. Teosinte closely resembles the common maize in its earlier stages, but becomes more bushy as it develops, owing to the large number of suckers thrown out by the parent stalk. The leaf is very similar to that of the maize in all stages of its development. A single stalk of teosinte will have from 10 to 15 ears which, unless the teosinte has mixed with maize, have practically no cob or core.

"The reason why little or no use is made of this valuable plant is that when planted near corn it readily crosses with the latter and spoils the corn crop, which is the staple agricultural crop of this district. It is reported that the natives have made tortillas from the ground seed of teosinte, but such instances are very rare." (*Hamm.*)

34258 and 34259.

From Teneriffe, Canary Islands. Presented by Dr. George V. Perez. Received August 16, 1912.

34258. Echium auberianum Webb and Berth.

"This is a very striking Teneriffe alpine plant growing at the Canadas on its rocky walls at an elevation of between 8,000 and 9,000 feet above sea level. It throws up in the second year a single thyrsus of beautiful pink flowers. I have just had one in flower 3½ meters high (11 feet 8 inches). *Echium wildpretii*, which I do not have, is probably this same plant or a hybrid of it. The latter has been cultivated at Kew Garden for over 10 years.

"This may turn out to be a valuable fodder plant in southern California, as goats are fond of it. Its rosette of leaves is more than 1 yard across." (*Perez.*)

Distribution.—A pink-flowered perennial found on the alpine slopes of the island of Teneriffe.

34259. Echium candicans × simplex.

"This is a new hybrid obtained this year by the writer. The thyrsus is light blue; a beautiful plant." (*Perez.*)

34260 to 34262.

From Teneriffe, Canary Islands. Presented by Dr. George V. Perez. Received August 16, 1912.

Seeds of the following:

34260. Pancratium canariense Ker.

"This is a Canary plant of the coast region, like *P. maritimum*. It flowers in October." (*Perez.*)

Distribution.—A bulbous plant with irislike leaves and umbels of large white flowers, found in the Canary Islands.

34261. Asparagus albus L. **Asparagus.**

"*Pastorianus.* This plant has been written about lately as simulating Larix. I received notes from Mr. Fairchild about it last year." (*Perez.*)

34262. Genista splendens Webb and Berth.

"This is a native of the mountains of Palma (Canary Islands), where it is called 'Gacia Blanca' in contrast to *Cytisus stenopetalus*, which is called 'Gacia.' It is a beautiful plant with somewhat silvery leaves and bright orange-yellow flowers. It is a forage plant also, like *Cytisus stenopetalus*, which is much employed as such in Palma." (*Perez.*)

34263. BISCHOFIA JAVANICA Blume. **Toog.**

From Buitenzorg, Java. Presented by the director, Department of Agriculture. Received August 12, 1912.

"A tall tree known as toog, with a fairly regular, unbuttressed, short bole with a wide-spreading crown. It is intolerant of shade. The bark is dark brown, soft to the touch, shedding in thin, large scales. The inner bark is red with a thin, dark-red latex. The leaves are alternate, trifoliate, and smooth, with the edges of the leaflets toothed. The sapwood is light cream colored; the heartwood is red, moderately hard, and moderately heavy." (*Whitford, Forests of the Philippines.*)

34264 to 34272.

From Rome, Italy. Presented by Dr. Gustav Eisen, California Academy of Sciences, San Francisco, Cal. Received August 14, 1912.

Seeds of the following; quoted notes by Dr. Eisen:

34264. PRUNUS ARMENIACA L. **Apricot.**

"These seeds were procured in a restaurant in Rome. Locality not known. This variety is probably the finest apricot I have ever tasted, being larger than our average Moorpark, globular, but with apex characteristically pointed, the point being short but very acute and set off suddenly and distinctly. Ripens evenly all around. Very sweet and highly flavored. Color deep orange."

34265. PRUNUS ARMENIACA L. **Apricot.**

"These apricots are said to come from the vicinity of Frascati, near Rome, in the Alban Hills. Some are said to have sweet seeds."

34266. CORYLUS AVELLANA L. **Filbert.**

"From Boscotrecase, near Naples. Name: *San Giovanni.* The earliest filbert known in that part of Italy, ripening by June 24. Of very good quality, though not as highly flavored as the wild nut, but remarkably well filled and solid. Valuable on account of its earliness."

34267. PRUNUS DOMESTICA L. **Plum.**

"*Papagone.* Average 2½ inches long by 1½ inches wide. Largest 2¾ to even 3 inches long by 1⅝ inches wide; elongate ovoid; greenish yellow, darker green on shaded side. Stalk short, half inch to less in length. Fine gray bloom. Very thin and smooth skin. Seed very thin pitted, sulcate edge, and remarkably small for the size of the fruit. Flesh firm, sweet, and highly flavored, adheres slightly to the stone."

34268. PRUNUS DOMESTICA L. **Plum.**

"Prune called *Prunaringia*, grown near Naples. The name may also, and more properly, be spelled *Prunarigno* or *Prunarignia*, and I am told that possibly it means Pruno di India, though I prefer to think that the name in some way refers to the main characteristic of the fruit—one or two vertical cracks ('rigno') when the fruit is fully ripe. In size this prune or plum resembles the *Papagone* but is more irregular. General shape like *Papagone*, but the color is deeper green. Very sweet and even more flavored, but the value of this splendid plum is lowered by the fact that when ripe it always possesses one or more vertical splits on the cheek. Thus, it does not present the same fine appearance as the *Papagone* and could not stand long shipment; but for canning and preserving this plum should be excellent. The seed, in proportion to the fruit, is considerably larger than the *Papagone* but somewhat similar in shape; thin and oblong, but less curved than the *Papagone*. Both ripen at about the same time and are at the height of perfection at Boscotrecase by August 1."

34264 to 34272—Continued.

34269. Prunus armeniaca L. **Apricot.**

"*Crisomelo.* From Boscotrecase. Very large, rounded oblong without points, color orange, ripens evenly all around."

34270. Prunus armeniaca L. **Apricot.**

"These apricots are all from the same garden and are said to be *Crisomelo.* As, however, the lots differ from each other, I take it that they must be from different trees, probably seedlings, though about this I can give no absolute information, not having collected them myself. But the fact that the seeds differ in size as well as in shape from the other *Crisomelos*, to me indicates a difference in variety. I have, however, been assured that all were selected from the best *Crisomelos.*"

34271. Prunus domestica L. **Plum.**

"Roman market. Best plum coming to this market, and seems especially good for shipment, as the flesh is firm. Size 2 to 2½ inches long by 1½ inches wide. Color green with red cheek. No particular name. Quality fair, but neither so sweet nor so well flavored as *Papagone* and *Prunaringia*, S. P. I. Nos. 34267 and 34268, which both belong to the Naples market."

34272. Prunus domestica L. **Plum.**

"Very large, globular, golden yellow. A variety of Reineclaude of the very best quality. From Frascati."

34274. Annona reticulata L. **Custard-apple.**

From Puerto Plata, Dominican Republic. Presented by Mr. Charles M. Hathaway, jr., American consul. Received August 16, 1912.

34275. Amygdalus persica L. **Peach.**

(*Prunus persica* Stokes.)

From Soochow, China. Presented by Mr. N. Gist Gee. Received August 19, 1912.

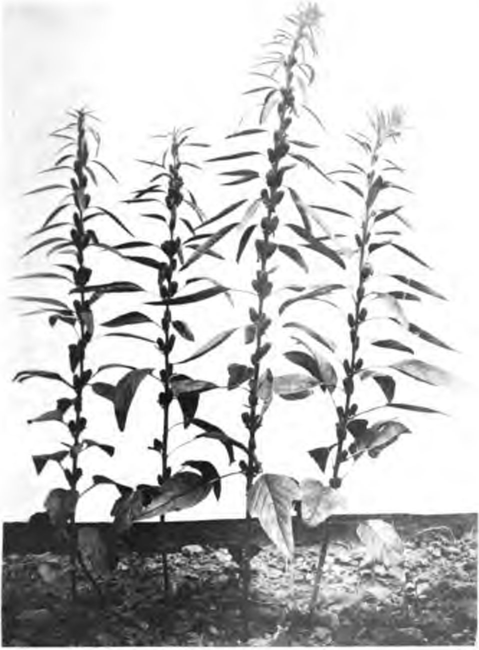
"This is a mixed lot of peach seeds containing some from red clingstones and some from white freestones."

34289. Gossypium hirsutum L. **Cotton.**

From Coimbatore, India. Presented by Mr. R. Cecil Wood, president, Agricultural College, through Mr. C. V. Piper. Received August 20, 1912.

"*Cambodia.* This cotton is said to have been introduced from Cambodia into southern India, where it has yielded far more heavily than any other cotton. It is of the American Upland type." (*Piper.*)

"This cotton has a close resemblance to the American Upland type and has been looked upon as an American cotton that has been acclimatized in Cambodia, though this may not prove to be the case. There is historical evidence of the introduction of a superior type of cotton from Siam to Louisiana in early days, and this may have been the origin of the long-staple varieties formerly grown so extensively in the Delta regions of Louisiana and Mississippi. Thus the Cambodia cotton may prove to be related to the American long-staple type. A variety of Upland cotton from Cochin China was studied in Egypt in 1910 which may prove to be similar to the present importation. An account of this cotton was published in Bulletin 210 of the Bureau of Plant Industry on Hindi Cotton in Egypt. The Cambodia cotton has been grown for a few years in southern India and has given much better results than any variety introduced from America. An account of the experiments in India was published in the Daily Consular and Trade Reports, December 7, 1910." (*O. F. Cook.*)



PLANTS OF SESAME (SESAMUM ORIENTALE L.) 3 TO 4 FEET TALL, AT THE YARROW FIELD STATION, ROCKVILLE, MD. (S. P. I. NO. 26438.)

An important oil seed, much cultivated in China, India, Palestine, and to some extent in Mexico. Selection work will be necessary to do away with the shattering of the seed as soon as it is ripe. The oil is important for table use, and the seeds are much used in confectionery in oriental countries. See S. P. I. No. 34290. (Photographed by Dorsett, No. 8175, July 23, 1911.)

34290 and 34291.

From Hankow, China. Presented by Mr. Roger S. Greene, American consul general. Received August 21, 1912.

Seeds of the following; quoted notes by Mr. Greene:

34290. SESAMUM ORIENTALE L. **Sesame.**
(*S. indicum* L.)

"*Tzu ma.* A good culinary oil is expressed from these seeds."

For an illustration of sesame plants growing at the Yarrow Field Station, Rockville, Md., see Plate V.

34291. CANNABIS SATIVA L. **Hemp.**

"*Ta ma.* Said to be the hemp which grows higher than all other kinds. I am told that there are two principal varieties of *ta ma* hemp in this neighborhood, one of which yields three crops a year, while the other yields only one crop. This tall hemp of which I am sending you seed gives only one crop."

34292. BOMBAX sp.

From Shek Lung, China. Presented by Mr. A. J. Fisher. Received August 10, 1912.

"This tree at first has a great many sharp thorns on its trunk, but after four or five years these thorns disappear. It grows into a big, high tree. I should think that it would not stand frost. It sheds its leaves in the winter here. In the spring before the leaves come it shows a red flower, followed by pods in which the cotton and seed are borne. It seems to be native to this soil and grows very easily and quickly. It is not cultivated, but usually grows up wild. It is called *min fa shue* (cotton tree). It is used by the Chinese for making pillows and is dearer than the imported cotton. It seems very good, for it does not gather in lumps like the ordinary cotton." (*Fisher.*)

34293 and 34294. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Cedar Hill, Tex. Presented by Mr. D. C. Nance, through Mr. C. V. Piper. Received August 26, 1912.

"This is a small, sweet-stemmed, kafirlike sorghum, but with a looser head than ordinary kafir. Mr. Nance writes that he has grown Red kafir continuously since 1908. The seed of it was obtained from the David Hardie Seed Co., of Dallas, Tex. 'I saw nothing peculiar growing among my Red kafir until 1911, when I discovered a few plants of kafirita. My attention was directed to them by reason of their diminutive size and early maturity. I noticed further that some plants bore red seeds and others white, and from this fact I gathered that kafirita was not merely a dwarf Red kafir, so I searched out the fields—6 acres—for other similar plants and obtained perhaps 2 ounces of seed in all. This I planted carefully in 1912, and the plants bred perfectly true. I suppose that we may as well assume that the plant originated here on my farm. It is evidently not just a dwarf Red kafir, for that view does not account for the white seeds. However, excepting this feature, together with a constantly yellow tinge of the whole plant except the seed, it is a perfect dwarf Red kafir.' (D. C. Nance, letter, August 7, 1912.)" (*C. V. Piper.*)

34293. White. **34294.** Red.

34295 to 34297. IRIS spp. Iris.

From California. Presented by Miss Alice Eastwood, San Francisco, Cal. Received August 26, 1912.

Seeds of the following; quoted notes by Miss Eastwood:

34295. IRIS TENUISSIMA Dykes.

"From Goose Valley, Shasta Co., Cal. Collected by Wallace Dillman."

34296. IRIS sp.

"Dunsmuir, Cal. I think it is *Iris tenuissma*, but it may be *Iris amabilis*. Collected by Alice Eastwood."

34297. IRIS AMABILIS Eastwood.

"Collected by Mr. G. P. Rixford, Loomis, Placer Co., Cal.

34299 and 34300.

Presented by Dr. C. F. Rife, Naperville, Ill. Received August 22, 1912.

34299. CARICA PAPAYA L. **Papaya.**

"From the Marshall Islands, Oceania. Mummy apple, called *pawpaw* in Australia." (*Rife.*)

34300. ANNONA RETICULATA L. **Custard-apple.**

"From Tahiti, Society Islands." (*Rife.*)

34301 and 34302.

From Edinburgh, Scotland. Presented by Prof. Bayley Balfour, Royal Botanic Garden. Received August 23, 1912.

Seeds of the following:

34301. CYTISUS HILLEBRANDTII (Christ) Briquet.

Distribution.—A spreading leguminous plant found on the mountains in Gran Canaria Island in the Canaries.

34302. CYTISUS ALBUS MICROPHYLLUS Aschers. and Graebn.
(*C. austriacus* L.)

Distribution.—A white-flowered, small-leaved leguminous plant found on the slopes of the Balkans in southern Europe.

34303 to 34308.

From Edinburgh, Scotland. Presented by Prof. Bayley Balfour, Royal Botanic Garden. Received August 23, 1912.

Seeds of the following:

34303. ACACIA WHANII F. Mueller.

Distribution.—A leguminous shrub with flowers in globular heads, found in Victoria in Australia.

34304. BERBERIS GUIMPELI Koch and Bouche. **Barberry.**

34305. CARISSA BISPINOSA (L.) Desf. **Amatungulu.**
(*C. arduina* Lam.)

34306. PITTOSPORUM EUGENIOIDES Cunningham. **Tarata.**

"A beautiful tree, sometimes 40 feet in height, whose pale-green, broadly oblong leaves, 2 or 3 inches long, with undulating margins, emit, when bruised, a lemonlike odor. The delicate venation and light-colored, almost white midrib add to the beauty of the leaf. The Maoris mix the resinous exudation from the white bark with the juice of the sow thistle and work it into a ball,

34303 to 34308—Continued.

which they chew. In October (in New Zealand) the tree produces large corymbs of yellowish green flowers, whose heavy, honeyed odor is almost sickly in its intensity. The plant is probably often self-pollinated, but though stamens and pistils are always present one or the other is often abortive, so that the flowers are often practically unisexual. The wood of this species, like that of the other species of the genus, is almost worthless. The tree is often cultivated for its beauty and is sometimes used to form an ornamental hedge." (*Laing and Blackwell, Plants of New Zealand.*)

Distribution.—A small round-headed tree with very fragrant flowers, found on the North Island and the South Island of New Zealand.

34307. PRIMULA SINOLISTERI Balf. f. **Primrose.**

"This plant is of special horticultural interest. It was introduced in 1908 by Bees, Ltd., grown from Forrest's seeds, and promises to be in our gardens what *P. obconica* Hance ought to have been, but is not. *P. sinolisteri* Balf. f. has not the irritant hairs. It is a free grower, forming compact masses of dark green, acutely lobed leaves, and the trusses of white (sometimes lilac) flowers are many. In our northern climate it is not quite hardy—like true *P. obconica* Hance in that respect. It was sent out as *P. listeri* King—a venial error of naming—and the name *sinolisteri* has been given in the hope of making the change of nomenclature less disturbing." (*Balfour, Chinese and Other Primulas, Jour. Roy. Hort. Soc., vol. 29, p. 142, 1913.*)

34308. PRIMULA FORRESTII Balf. f. **Primrose.**

"*P. forrestii*, of the section *Callianthæ*, is a curious as well as a beautiful species, and a lover of dry, stony situations. The flowers are large and numerous, of a rich deep shade of orange, and fragrant. The foliage is densely coated with glandular hairs, and, in the fresh state, has a peculiar, but not unpleasant, aromatic odor. The plant is specially adapted to the situation in which it is commonly found, i. e., the crevices of dry, shady limestone cliffs, in having a long, intensely tough, woody rootstock of 2–3 feet in length. The base of this is very tapered, generally only a few inches being inclosed in the crevices of the rocks. From this point the plant is pendulous for almost the full length of the remainder of the rootstock, a few inches of the growing apex being turned out and upwards. The rootstock for two-thirds of its length is covered with the induviæ of previous year's foliage, which, at the apex, form a dense matted mass with the fresh foliage and flowers arising from the center. Judging from the length of the rootstocks of specimens seen growing, allowing two whorls of leaves for one year's growth, a very liberal estimate, some plants must reach the age of 50–100 years. Another feature which pointed to great age in the species was, the cliffs behind some of the larger specimens were scored and worn to the depth of fully an inch by the motion of the plants in the wind." (*Forrest, Primulaceæ from Western Yunnan, Notes from the Edinburgh Royal Botanic Garden, vol. 4, p. 15, 1908.*)

Distribution.—A primrose with fragrant deep-yellow flowers, found on the slopes of the mountains at an elevation of 9,000 to 11,000 feet in the northwestern part of the province of Yunnan in China.

34309. CARYOPHYLLUS sp.

(*Eugenia* sp.)

From Paraguay. Presented by Mr. C. F. Mead, Buenos Aires. Received August 16, 1912.

"In the Guarany language this fruit is called *ywapurú*. I have never seen it in any place except in the monte in the district between Sapucay and Asuncion, nor can I find any mention of it in any botanical books. It grows in bush form to a height of about 2 meters, the fruit, which is about the size and coloring of a dark-red plum, being borne in clusters about the main stalks. I have never tasted the fruit, but it is very highly spoken of by the natives here." (*Mead.*)

34311. PRUNUS CERASUS L. **Cherry.**

From Abchasica, Western Caucasus. Presented by Mr. A. Rolloff, director, Botanic Garden, Tiflis, Caucasus, Russia. Received September 9, 1912.

These are said by Mr. Rolloff to be seeds of wild, sour cherries and were sent in under the name *Cerasus caproniana abchasica.*

34312. SYZYGIUM SMITHII (Poir.) Niedenzu.
(*Eugenia smithii* Poir.)

From Melbourne, Australia. Presented by Mr. J. Cronin, curator, Botanic and Domain Gardens. Received September 9, 1912.

"A close-wooded tree from 1 to 3 feet in diameter and from 80 to 120 feet in height. The bark contains about 17 per cent of tannic acid and 3.6 per cent of gallic acid. The white, purplish-tinted fruits are produced in profusion, are acidulous and wholesome, and are eaten by the natives, small boys, and birds." (*Maiden, Australian Native Plants.*)

Distribution.—A tree found in North Australia, Queensland, New South Wales, and Victoria, in Australia.

34313. SOLANUM TUBEROSUM L. **Potato.**

From La Paz, Bolivia. Presented by Mr. Horace G. Knowles, American consul. Received September 9, 1912.

"A smooth, clean-looking, thin-skinned, white potato of fine flavor and said to be a good keeper." (*Knowles.*)

"Tubers of medium size, decidedly round-oblate in shape; skin dark red; eyes large and deep. In many respects the tubers resemble the American variety known as 'Bliss Triumph'". (*William Stuart.*)

34314. HORDEUM sp. **Barley.**

From La Paz, Bolivia. Presented by Mr. Horace G. Knowles, American consul. Received September 9, 1912.

"The straw of this barley grows to more than 4 feet in height and must have considerable nourishment, as it is about the only feed given to the animals in this altitude of Bolivia." (*Knowles.*)

34315. RAPHIA sp. **Rafla palm.**

From McCale Sana, Lumbwa, British East Africa. Presented by Mrs. Ernest Smith. Received September 13, 1912.

"This palm is indigenous to this country, and the midrib of the huge leaves is largely used in the roofing of the buildings." (*Smith.*)

34316. COLOCASIA sp. **Dasheen.**

From Boca Ceiga, via Largo, Fla. Presented by Mr. T. S. Baldwin, in care of Baldwin & Bosworth. Received August 19, 1912.

"From the appearance of the corm and tubers, this dasheen is of the Japanese type. The corm is acrid in the raw state and is of coarse texture, strong flavor, and deep-violet color when cooked. The tubers are nonacrid when raw, are rather moist when cooked, and have a flavor much like the ordinary potato." (*R. A. Young.*)

34317. TRITICUM AESTIVUM L. **Wheat.**
(*T. vulgare* Vill.)

From Italy. Presented by Mr. William W. Burt, American vice consul, Florence. Received September 10, 1912.

"Grown in the Pistoja district. The statement from the grower is that the crop this year has been poor both in quality and quantity, that the seed is sown in the latter part of October and the first part of November, and the wheat is gathered in the first part of July. This wheat was grown on a plain at 184 feet above sea level." (*Burt.*)

34318 and 34319.

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received September 16, 1912.

34318. ARECA CATECHU L. **Betel palm.**

Distribution.—A tall palm found in the damp, hot regions of Asia and eastward through the Malay Archipelago to the Philippines.

34319. ORANIA REGALIS Blume. **Palm.**

"A rare palm of the Philippines, rather closely related, I believe, to the coconut, and which I believe would make an interesting greenhouse plant; it should also make a good ornamental for southern Florida, Porto Rico, and Cuba." (*Barrett.*)

See S. P. I. Nos. 3799 to 3801 for previous introduction.

34320 to 34325.

From Puerto Plata, Dominican Republic. Presented by Mr. Charles M. Hathaway, jr., American consul. Received September 9, 1912.

Seeds of the following; quoted notes by Mr. Hathaway:

34320. ACHRAS ZAPOTA L. **Sapota.**

"The fruit is ellipsoid in shape, exterior dark russet, somewhat like mushrooms or fungi, interior deep crimson verging toward coral but darker. Its taste is sweet and spicy and hardly likely to appeal to the average American palate."

34321 to 34325. ANNONA SQUAMOSA L. **Sweetsop.**

"The English-speaking islanders call this the 'sugar-apple.' It is, to my taste, a fine fruit."

"*Annona squamosa* L. is perhaps the most widely cultivated of all the custard-apples. It is essentially tropical, while the cherimoya (*Annona cherimola* Miller) is subtropical and will not flourish at sea level in hot countries. The fruit varies in quality, and, as in other fruits which have been cultivated for a long time, care should be taken in selecting the best varieties for asexual propagation. For this reason the seeds of the various fruits sent to the department have been kept distinct." (*W. E. Safford.*)

34326 to 34328.

From Nogent-sur-Marne (Seine), France. Presented by Mr. E. Prudhomme, director, Colonial Garden. Received September 19, 1912.

34326. CYMBOPOGON SCHOENANTHUS (L.) Spreng. **Ginger grass.**
(*Andropogon schoenanthus* L.)

See S. P. I. No. 29456 for description.

34326 to 34328—Continued.

34327. Piper cubeba L. f. **Cubeb pepper.**

"The cubebs of commerce, which are of importance chiefly in medicine, are the berries of a species of pepper vine, easily distinguished from the ordinary pepper by the stalked and larger berries, or 'corns.' The plant is a native of Java, Sumatra, etc., and thrives under similar conditions as pepper, requiring live or artificial supports and a certain amount of shade. The world's supply of cubebs is obtained chiefly from Java, where the plant is cultivated. The plants are best propagated by cuttings taken from among the top or fruitful shoots, such plants being more productive than those taken from near the base." (*Macmillan, Handbook of Tropical Gardening.*)

Distribution.—A climbing shrub found in Java and other islands of the Malay Archipelago.

34328. Piper chaba Hunter.

Distribution.—Commonly cultivated in India and the Malay Archipelago.

34329. Secale cereale L. **Rye.**

From Wronow, Koschmin, Posen, Germany. Presented by Saatzuchtwirtschaft Fritz Claassen. Received September 12, 1912.

Original R. von Rümker winter rye No. 2.

34330. Baryxylum inerme (Roxb.) Pierre.
(*Peltophorum ferrugineum* Benth.)

From Manila, Philippine Islands. Presented by Mr. E. D. Merrill, botanist, Bureau of Science. Received September 21, 1912.

"This tree is a native of the Philippines and is one of the best shade trees that we have. It is evergreen and bears large terminal panicles of very showy yellow flowers. The species is of wide distribution in the Malayan region, and in the Philippines grows in nature near the seashore. It will certainly thrive in Cuba, Porto Rico, and Panama, and probably in southern Florida and in southern California. There is an excellent colored figure of it in the third edition of Blanco's "Flora de Filipinas." (*Merrill, in letter of August 20, 1912.*)

Distribution.—A tall, unarmed tree found in Ceylon and eastward through the Malay Archipelago to northern Australia.

34331 to 34333. Cucumis melo L. **Muskmelon.**

From Soochow, China. Presented by Mr. N. Gist Gee. Received September 23, 1912.

Seeds of the following; quoted notes by Mr. Gee:

34331. "Round, green melon. Very nice."

34332. "Yellow-and-white striped melon, 6 to 8 inches in length."

34333. "Small white melon, sweet, 4 to 5 inches in length."

34334. Rubus lasiocarpus Smith. **Raspberry.**

From India. Presented by Mr. John W. B. Field, Castlemaine, Victoria, Australia. Received September 9, 1912.

See S. P. I. No. 32453 for description.

34335. TRITICUM DICOCCUM Schrank. **White emmer.**

From Italy. Presented by Mr. William W. Burt, American vice consul, Florence. Received September 10, 1912.

"These are typical heads of white emmer, a cereal related to spelt and wheat." (*C. R. Ball.*)

34336. OLEA EUROPEA L. **Olive.**

From Kew, England. Presented by Dr. David Prain, director, Royal Botanic Garden. Received September 30, 1912.

"*Cinditiva.*"

Cuttings.

34339. CARICA PAPAYA L. **Papaya.**

From Honolulu, Hawaii. Presented by Mr. J. E. Higgins, horticulturist, Hawaii experiment station. Received September 30, 1912.

"A monœcious variety and our best in flavor." (*Higgins.*)

Seeds.

BOTANICAL NOTES AND PUBLICATION OF NEW NAMES.

PLANT LISTED IN A PREVIOUS INVENTORY.

26116. VILLARESIA CHILENSIS (Molina) Stuntz.

(*Citrus chilensis* Molina, Saggio sulla Historia Naturali Chili, p. 171, 1782.)

(*Villaresia mucronata* Ruiz and Pavon, Flora Peruviana, vol. 3, p. 9, pl. 231, 1802.)

Seeds of this Chilean icacinaceous tree were received under the name *Villaresia mucronata* Ruiz and Pavon. The earliest name applied to this plant, however, was *Citrus chilensis* Molina, which specific name it is necessary to adopt.

PLANTS LISTED IN THIS INVENTORY.

34167. WARNERIA THUNBERGIA (L. f.) Stuntz.

(*Gardenia thunbergia* L. f., Supplementum Plantarum Systematis Vegetabilium, p. 162, 1781.)

Seeds of this white-flowered rubiaceous shrub were received under the name *Gardenia thunbergia* L. f. In publishing this name, the younger Linnæus cited *Thunbergia capensis* Montin (Kongl. Vetensk. Acad. Handl. Stockholm, vol. 34, p. 288, pl. 11, 1773). Montin, however, merely characterized the genus Thunbergia, with neither binomial nor citations. The specific name given by Linnæus filius is therefore the earliest and should be adopted. The reason for using the generic name Warneria for the plants usually referred to the genus Gardenia is explained under *Warneria augusta* Stickman, S. P. I. No. 30498, in Bulletin No. 242, Bureau of Plant Industry, p. 14, 1912.

34169. TRICALYSIA FLORIBUNDA (Harvey) Stuntz.

(*Kraussia floribunda* Harvey, Hooker's Journal of Botany, vol. 1, p. 21, January, 1842.)

(*Coffea kraussiana* Hochstetter, Flora, vol. 25, p. 237, April, 1842.)

(*Tricalysia kraussiana* (Hochst.) Schinz, Mem. Herb. Boiss., vol. 10, p. 67, 1900.)

Seeds of this rubiaceous shrub from Natal were received under the name *Kraussia floribunda* Harvey. This name, published in January, 1842, was based on Krauss's No. 121, which was also the type of *Coffea kraussiana* Hochstetter, published in April, 1842. As the plant is now considered to belong to the genus Tricalysia and the combination *Tricalysia floribunda* seems never to have been published, it is necessary to adopt it now.

34171. PTERYGOCARPUS FLORIBUNDUS (Meyer) Stuntz.

(*Dregea floribunda* Meyer, Commentariorum de Plantis Africae Australioris, vol. 1, fasc. 2, p. 199, 1837.)

Seeds of this asclepiadaceous plant from South Africa were received under the name *Dregea floribunda* Meyer. The generic name Dregea had, however, been used by Ecklon and Zeyher in June, 1836 (Enumeratio Plantarum Africae Australiae Extratropicae, p. 350), for certain umbelliferous plants now considered to belong to Peucedanum. It is therefore necessary to adopt the generic name Pterygocarpus, published by Hochstetter in 1843 (Flora, vol. 26, bd. 1, p. 78). The type species of Hochstetter's genus is *P. abyssinicus*, a plant congeneric with *P. floribundus*.

34181. MICROCOS LATERIFLORA L.
(*Grewia asiatica* L., Mantissa, p. 122, 1767.)

Seeds of this yellow-flowered tiliaceous shrub from India were received under the name *Grewia asiatica*. The generic names Microcos and Grewia, which are recognized as congeneric, were both published in Species Plantarum, 1753, Microcos on page 514, and Grewia on page 964. Microcos having priority of publication, it is necessary to adopt it. The present species was published by Linnæus as *Grewia asiatica* in 1767, but had been previously published (Species Plantarum, p. 514, 1753) as *Microcos lateriflora*, which name it is necessary to use here.

INDEX OF COMMON AND SCIENTIFIC NAMES.

Aberia caffra. See *Dovyalis caffra.*
Acacia whanii, 34303.
Acer ginnala semenovii, 34137.
Achras zapota, 34320.
Alfalfa. See *Medicago rigidula cinerascens.*
Allspice. See *Pimenta officinalis.*
Amatungulu. See *Carissa* spp.
Amygdalus persica, 34131, 34211, 34275.
Ananas sativus, 34124.
Andropogon schoenanthus. See *Cymbopogon schoenanthus.*
Annona reticulata, 34100, 34274, 34300.
  squamosa, 34321 to 34325.
Antidesma bifrons, 34163.
  venosum. See *Antidesma bifrons.*
Apple, crab. See *Malus* sp.
Apricot, Crisomelo, 34269, 34270.
  (Italy), 34264, 34265.
Areca catechu, 34318.
Ash, mountain. See *Sorbus tianschanica.*
Asparagus. See *Asparagus* spp.
Asparagus albus, 34261.
  trichophyllus, 34133.
Avellano. See *Gevuina avellana.*
Avocado. See *Persea americana.*

Baphia racemosa, 34164.
Barberry. See *Berberis guimpeli.*
Barley, beardless, 34110.
  (Bolivia), 34314.
  (China), 34127, 34129.
Baryxylum inerme, 34330.
Bayberry. See *Pimenta acris.*
Beet. See *Beta* sp.
Berberis guimpeli, 34304.
Beta sp., 34252.
Betoom. See *Pistacia atlantica.*
Bischofia javanica, 34263.
Bitongol. See *Flacourtia sepiaria.*
Bombax sp., 34292.
Bonavist bean. See *Dolichos lablab.*
Boscia undulata, 34177.
Brassaia actinophylla. See *Schefflera actinophylla.*
Brassica pekinensis, 34216.

Cabbage, Chinese. See *Brassica pekinensis.*
Calophyllum inophyllum, 34125.
Cannabis sativa, 34291.
Capparis citrifolia, 34165.
Carica papaya, 34299, 34339.
Carissa arduina. See *Carissa bispinosa.*
  bispinosa, 34305.
  grandiflora, 34166.
  ovata, 34153, 34253.
Caryophyllus sp., 34309.
Castilla elastica, 34130.
Cherry. See *Prunus cerasus.*
Clavija ornata, 34122.
Clover (Oliver No. 3), 34195.
  (Oliver No. 13), 34196.
  (Oliver No. 28), 34197.
Coffea kraussiana. See *Tricalysia floribunda.*
Coffee, wild, 34217.
Colocasia sp., 34316.
Cordia myxa, 34251.
Corn (China), 34214, 34215.
  (Peru), 34120, 34121.
Corylus avellana, 34266.
Cotton, Cambodia, 34289.
  Candava, 34188.
  Bulac-Cahoz, 34193.
  Bulac Damo, 34190.
  Bulac Saot-Bayo, 34192.
  Bulac Saot-Pula, 34194.
  Gapas, 34189.
  Gapas Kinachila, 34184.
  Gapas Sanglay, 34185.
  Taal, 34187.
  Toguillo, 34186.
Cowpea (Egypt), 34102 to 34104.
  (Surinam), 34255, 34256.
Crab apple. See *Malus* sp.
Crataegus spp., 34135, 34136.

Cubeb pepper. See *Piper cubeba.*
Cucumis melo, 34331 to 34333.
Cupang. See *Parkia timoriana.*
Custard-apple. See *Annona reticulata.*
Cymbopogon schoenanthus, 34326.
Cytisus albus microphyllus, 34302.
  austriacus. See *Cytisus albus.*
  hillebrandtii, 34301.

Dasheen. See *Colocasia* sp.
Date, Medjhool (Tafilelt), 34213.
  wild (British East Africa), 34218.
Dimocarpus longan, 34206.
Dioscorea pentaphylla, 34159.
  sativa, 34158.
Dolichos lablab, 34106.
Dovyalis caffra, 34250.
Dregea floribunda. See *Pterygocarpus floribundus.*

Echium auberianum, 34258.
  candicans × *simplex*, 34259.
Emmer, white. See *Triticum dicoccum.*
Eriobotrya japonica, 34101, 34119.
Euchlaena mexicana, 34257.
Eugenia sp. See *Caryophyllus* sp.
  smithii. See *Syzygium smithii.*

Filbert. See *Corylus avellana.*
Flacourtia sepiaria, 34093.

Gardenia thunbergia. See *Warneria thunbergia.*
Genista splendens, 34262.
Gevuina avellana, 34113.
Gossypium spp., 34186, 34189, 34190, 34192, 34193.
  arboreum, 34184.
  hirsutum, 34185, 34187, 34188, 34191, 34194, 34289.
Grass, ginger. See *Cymbopogon schoenanthus.*
  Para. See *Panicum barbinode.*
  Sudan. See *Holcus sorghum.*
Grewia asiatica. See *Microcos lateriflora.*

Hawthorn. See *Crataegus* spp.
Hemp. See *Cannabis sativa.*
Holcus sorghum, 34114, 34293, 34294.
Hordeum sp., 34314.
  vulgare, 34127, 34129.
    trifurcatum, 34110.
Hyphaene thebaica, 34219.

Ilex paraguariensis, 34152.
Ipomoea albivenia, 34168.
  batatas, 34154, 34155.
Iris sp. 34296.
  amabilis, 34297.
  tenuissima, 34118, 34295.
Ironwood, white. See *Boscia undulata.*

Juglans australis, 34254.
Jujube. See *Ziziphus jujuba.*
Juniper, 34140 to 34145.
Juniperus spp., 34142 to 34145.
  communis oblonga, 34141.
  pseudosabina, 34140.

Kei-apple. See *Dovyalis caffra.*
Kraussia floribunda. See *Tricalysia floribunda.*

Lingue. See *Persea lingue.*
Litchi. See *Litchi chinensis.*
Litchi chinensis, 34117.
Longan. See *Dimocarpus longan.*
Loquat. See *Eriobotrya japonica.*

Maba natalensis, 34170.
Malus sp., 34180.
Mangifera indica, 34097, 34199 to 34205.
Mango, Aristide, 34201.
  Augusta, 34199.
  Caribe, 34097.
  Dauphine, 34205.
  Figet, 34203.
  Jose, 34200.
  Maison Rouge, 34204.
  Torse, 34202.
Maple. See *Acer ginnala semenovii.*
Mast-wood. See *Calophyllum inophyllum.*
Medicago coronata, 34147.
  falcata, 34116.
  marina, 34149.
  minima, 34150.
  rigidula cinerascens, 34105.
  rotata, 34151.
  rugosa, 34148.
Melon. See *Cucumis melo.*
Microcos lateriflora, 34181.
Mountain ash. See *Sorbus tianschanica.*
Muskmelon. See *Cucumis melo.*

Nephelium litchi. See *Litchi chinensis.*
  longana. See *Dimocarpus longan.*

Olea europea, 34336.
Olive. See *Olea europea.*
Omphalea sp., 34156.
Oncoba kraussiana, 34172.
Opuntia azurea, 34112.
    vilis, 34111.
Orania regalis, 34319.
Oryza sativa, 34220 to 34249.
Osteospermum moniliferum, 34173.
Oxyanthus natalensis. See *Oxyanthus pyriformis.*
    pyriformis, 34174.

Pai ts'ai. See *Brassica pekinensis*
Palm, betel, 34318.
    doum, 34219.
    (Philippines), 34319.
    rafia, 34315.
Pancratium canariense, 34260.
Panicum barbinode, 34109.
Papaya (Hawaii), 34339.
    (Marshall Islands), 34299.
Parkia roxburghii. See *Parkia timoriana.*
    timoriana, 34094.
Pavetta revoluta, 34175.
Pea. See *Pisum arvense.*
    violet. See *Baphia racemosa.*
Peach (China), 34211, 34275.
    (Guadeloupe), 34131.
Peltophorum ferrugineum. See *Baryxylum inerme.*
Persea americana, 34095, 34096.
    gratissima. See *Persea americana.*
    lingue, 34157.
Phoenix sp., 34218.
    dactylifera, 34213.
Pimenta acris, 34207.
    officinalis, 34208.
Pineapple. See *Ananas sativus.*
Piper chaba, 34328.
    cubeba, 34327.
Pistacia atlantica, 34212.
Pisum arvense, 34183.
Pittosporum eugenioides, 34306.
Plum, Papagone, 34267.
    Prunaringia, 34268.
    (Rome), 34271, 34272.
    (Russia), 34134.
Potato (Bolivia), 34313.
    sweet, 34154, 34155.
Prickly pear. See *Opuntia* spp.
Primrose. See *Primula* spp.
Primula forrestii, 34308.
    sinolisteri, 34307.
Prunus armeniaca, 34264, 34265, 34269, 34270.
    cerasus, 34311.
    domestica, 34267, 34268, 34271, 34272.
    persica. See *Amygdalus persica.*
    sibirica, 34134.
Psychotria capensis, 34176.
Pterygocarpus floribundus, 34171.
Pyrus sp. See *Malus* sp.
    tianschanica. See *Sorbus tianschanica.*

Quaqua. See *Strychnos gerrardi.*
Queensland umbrella tree. See *Schefflera actinophylla.*

Raphia sp., 34315.
Raspberry. See *Rubus lasiocarpus.*
Rice, Arabon, 34220.
    Baybay, 34222.
    Binankero, 34224.
    Binatad, 34223.
    Binugayan carcar, 34221.
    Cabayuran, 34226.
    Calobang, 34227.
    Calodo, 34225.
    Cavitenang nagmaliu, 34228.
    Ilangitnon, 34229.
    Joquianan, 34230.
    Lauá, 34231.
    Macan Santa Rita, 34235.
        Silangan, 34236.
    Magpunit, 34237.
    Manabun-ac, 34234.
    Mancasar, 34232.
    Manticanon, 34233.
    Minaya, 34238.
    Pilapil, 34239.
    Piniling Daniel, 34240.
    Quinaluay, 34241.
    Quinanay, 34242.
    Quinatia, 34243.
    Quiriquiri, 34244.
    San Pablo, 34245.
    Takilid, 34247.
    Tayading pulá, 34246.
    Tungcadol, 34248.
    Virgen, 34249.
Rosa spp., 34138, 34139.
Rose. See *Rosa* spp.

Rubber. See *Castilla elastica.*
Rubus lasiocarpus, 34334.
Rye. See *Secale cereale.*

Sapium utile, 34209.
Sapota. See *Achras zapota.*
Schefflera actinophylla, 34123.
Sebesten. See *Cordia myxa.*
Secale cereale, 34329.
Sesame. See *Sesamum orientale.*
Sesamum indicum. See *Sesamum orientale.*
    orientale, 34290.
Sismoyo. See *Spondias* sp.
Smilax sandwicensis, 34160.
Solanum tuberosum, 34313.
Sorbus tianschanica, 34132.
Sorghum, 34114, 34293, 34294.
Sorghum vulgare. See *Holcus sorghum.*
Spondias sp., 34210.
Stizolobium cinereum, 34182.
    spp., 34098, 34099.
Strychnos gerrardi, 34161.
Sweet potato. See *Ipomoea batatas.*
Sweetsop. See *Annona squamosa.*
Syzygium smithii, 34312.

Tarata. See *Pittosporum eugenioides.*
Teosinte. See *Euchlaena mexicana.*
Toddalia lanceolata. See *Boscia undulata.*
Toog. See *Bischofia javanica.*
Tricalysia floribunda, 34169.
Trifolium sp., 34195.
    angustifolium, 34196.
    procumbens, 34197.
Triticum aestivum, 34126, 34128, 34317.
    dicoccum, 34335.
    vulgare. See *Triticum aestivum.*
Turraea heterophylla, 34179.
    obtusifolia, 34178.

Uhi. See *Smilax sandwicensis.*
Undetermined, 34217.

Vigna sinensis, 34102 to 34104, 34255, 34256.

Walnut. See *Juglans australis.*
Warneria thunbergia, 34167.
Wheat (China), 34128.
    (Italy), 34317.
    (Venezuela), 34126.

Yam. See *Dioscorea* spp.
Yerba maté. See *Ilex paraguariensis.*

Zea mays, 34120, 34121, 34214, 34215.
Ziziphus jujuba, 34162.
    sativa. See *Z. jujuba.*

○

Issued January 23, 1915.

U. S. DEPARTMENT OF AGRICULTURE.
BUREAU OF PLANT INDUSTRY.
WILLIAM A. TAYLOR, *Chief of Bureau.*

INVENTORY
OF
SEEDS AND PLANTS IMPORTED
BY THE
OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM OCTOBER 1 TO DECEMBER 31, 1912.

(No. 33; Nos. 34340 to 34727.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1915.

BUREAU OF PLANT INDUSTRY.

Chief of Bureau, WILLIAM A. TAYLOR.
Assistant Chief of Bureau, KARL F. KELLERMAN.
Officer in Charge of Publications, J. E. ROCKWELL.
Chief Clerk, JAMES E. JONES.

FOREIGN SEED AND PLANT INTRODUCTION.

SCIENTIFIC STAFF.

David Fairchild, *Agricultural Explorer in Charge.*

P. H. Dorsett, *Plant Introducer, in Charge of Plant Introduction Field Stations.*
Peter Bisset, *Plant Introducer, in Charge of Foreign Plant Distribution.*
Frank N. Meyer and Wilson Popenoe, *Agricultural Explorers.*
George W. Oliver, *Plant Breeder and Propagator.*
H. C. Skeels, S. C. Stuntz, and R. A. Young, *Botanical Assistants.*
Robert L. Beagles, *Superintendent, Plant Introduction Field Station, Chico, Cal.*
Edward Simmonds, *Superintendent, Subtropical Plant Introduction Field Station, Miami, Fla.*
John M. Rankin, *Superintendent, Yarrow Plant Introduction Field Station, Rockville, Md.*
W. H. F. Gomme, *Superintendent, Plant Introduction Field Station, Brooksville, Fla.*
Edward Goucher and H. Klopfer, *Plant Propagators.*

Collaborators: Aaron Aaronsohn, *Director, Jewish Agricultural Experimental Station, Haifa, Palestine;* Thomas W. Brown, *Giza, Cairo, Egypt;* Dr. Gustav Eisen, *California Academy of Sciences, San Francisco, Cal.;* E. C. Green, *Coroata, Maranhao, Brazil;* A. C. Hartless, *Seharunpur Botanic Gardens, Seharunpur, India;* H. Harold Hume, *Glen St. Mary, Fla.;* Barbour Lathrop, *Chicago, Ill.;* William S. Lyon, *Gardens of Nagtajan, Manila, P. I.;* William H. Raynes, *Tallahassee, Fla.;* Joseph F. Rock, *Honolulu, Hawaii;* Miss Eliza R. Scidmore, *Yokohama, Japan;* Charles Simpson, *Little River, Fla.;* Dr. L. Trabut, *Director, Service Botanique, Algiers, Algeria;* E. H. Wilson, *Arnold Arboretum, Jamaica Plain, Mass.*

CONTENTS.

Page.
Introductory statement........ 5
Inventory........ 9
Botanical notes and publication of new names........ 53
Index of common and scientific names........ 55

ILLUSTRATIONS.

Page.
PLATE I. Male flowers of the Tung-shu, or Chinese wood-oil tree (*Aleurites fordii*)........ 18
II. Mango of the Divine variety in fruit at the United States Plant Introduction Field Station, Miami, Fla........ 18
III. The duku, or doekoe (*Lansium domesticum* Jack), of the Dutch East Indies........ 28
IV. The langsat (*Lansium domesticum* Jack)........ 28
V. *Prunus mira*, the new species of peach recently discovered near Tachienlu, Szechwan, China, by Mr. E. H. Wilson, of the Arnold Arboretum........ 36

INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM OCTOBER 1 TO DECEMBER 31, 1912 (NO. 33; NOS. 34340—34727).

INTRODUCTORY STATEMENT.

The remarkable success which has attended the introduction of Chinese plants into America is no doubt due to the similarity between the climate of eastern China and that of eastern North America. This success of the Chinese plants, which nurserymen are rapidly coming to realize, will give special interest to the remarkable collection of plants from western China which, through the courtesy of the Arnold Arboretum, will be distributed from this office as soon as a stock of them has been prepared. The collection was made by Mr. E. H. Wilson, now of the Arboretum, during his expeditions in the various provinces of western China, and among the 79 different numbers (34523 to 34601), most of which will find a place somewhere in American horticulture, the following are of special economic importance as plant-breeding material or for use as ornamentals in both city and country yards: No. 34601, a new and remarkable species of wild peach, *Prunus mira*, which bears an edible fruit containing a smooth instead of a furrowed stone (a character quite unknown heretofore among peaches), which may be used in the improvement of the commercial peach; Nos. 34525, 34527, and 34546, three promising new hollies which may prove hardy here; No. 34537, a new Ampelopsis, *A. megalophylla*, with large, divided leaves 3 feet in diameter; No. 34544, a 70-foot maple, *Acer catalpifolium*, the leaves of which color a golden yellow in autumn; Nos. 34538 and 34549, the Yunnan pine, *Pinus sinensis yunnanensis;* No. 34555, the Chinese butternut, *Juglans cathayensis*, a bush or small tree; Nos. 34558, 34560, 34563, 34574, 34576, and 34582, six species of Prunus for those who are doing breeding work in this genus; Nos. 34580 and 34581, two species of Vitis; No. 34583, the Chinese close relative of the southern sweet-gum tree, *Liquidambar formosana*, which has proved hardy in the Arnold Arboretum; No. 34589, an undescribed species of quince, *Cydonia* sp.; No. 34590, a new spine-bearing hazelnut (*Corylus* sp.) with large fruits; and No. 34599, a new species of Magnolia, *M. wilsonii*.

During the period covered by this inventory Messrs. Paul and Wilson Popenoe, two young California plant collectors who have visited India in the interest of commercial firms, have sent in some unusually interesting material, including the bangilan, No. 34366, *Sterculia macrophylla*, a striking ornamental with brilliant orange-scarlet fruits which produce a blaze of color and can be seen for a great distance; No. 34494, the rambutan from Singapore, *Nephelium lappaceum*, one of the commonest and most palatable fruits of the Malay peninsula, which has not yet been acclimated in the Western Hemisphere; No. 34495, the rambe, *Baccaurea motleyana*, a straw-colored fruit with a gooseberry flavor, from the same region; No. 34496, the remarkable duku, or doekoe, of Java, *Lansium domesticum*, a fruit which, notwithstanding its delicious and refreshing character, has been entirely neglected in the West Indies. Mr. Wilson Popenoe has distinguished for the first time this duku from the langsat of the Philippines. From Seharunpur Mr. Popenoe sent a native amaranth, *Amaranthus gangeticus*, No. 34497, which is used in India in place of spinach.

From correspondents and our consuls abroad the following have been received: No. 34351, the African oil-bean tree, *Pentaclethra macrophylla*, from southern Nigeria, which yields seeds producing an oil only 10 per cent less valuable than cottonseed oil, probably adapted to conditions in southern Florida; Nos. 34353 and 34431, the baúno, *Mangifera verticillata*, a remarkable new species closely related to the mango and adapted to the inundated regions of Mindanao, but with white-fleshed fruit, the quality of which would put it on a par with the mango, while for stock purposes it may prove of value; Nos. 34356 to 34359, seeds of valuable timber-producing trees from Piracicaba, Brazil, for forestry experiments in Florida; No. 34361, a new strain of hairy vetch developed at Guelph, Canada, adapted to the humid conditions of the Eastern States; No. 34364, *Carissa carandas*, a black-fruited species of this interesting fruiting hedge plant from India, via Saff, Egypt; No. 34368, the pili nut of the Philippines, *Canarium ovatum*, a new table nut to be served just as salted almonds are now; Nos. 34381 and 34384 to 34386, four species of the genus Nothofagus, beeches of Chile, some of which, because of their valuable timber and evergreen character, deserve to be tested extensively in the moist coastal region about San Francisco; No. 34387, the *Persea lingue* of Chile, which, although reported to have leaves that are poisonous to stock, because of its ability to live on all kinds of soil should be tested as a stock for the avocado, and hybrids with it ought to be made; No. 34415, a seedless-fruited form of *Berberis vulgaris*, found at Sherborn, Mass., by Miss Martha L. Loomis and which, in view of the unusual fruitfulness of the barberry, may prove of commercial importance; No. 34420, the famous nipa palm of the Orient, *Nypa fruticans*, with the leaves of which the houses of the natives are thatched and from the sap of which alcohol in great quantities is made, preliminary trials indicating that this palm will probably grow in southern Florida along the tidal swamps and possibly on the Everglades where not too cold; Nos. 34426 and 34427, a variety of pop corn from Spain with a purple aleurone layer and peculiarly adapted for cross-fertilization; Nos. 34440 to 34454, 15 named varieties of mango from Trinidad, representing local and East Indian introduced sorts; No. 34493, the che fruit from the Yangtze Valley, *Cudrania tricuspidata*, which has already fruited at Augusta, Ga., bearing a delicate-flavored edible fruit that looks like a small pink Osage orange, to which it is botanically related and with which it might hybridize; No. 34620, a wild species of asparagus, *A. acutifolius*, from the dry slopes of the Maritime Alps of southern France, the shoots of which are gathered and form a regular article of commerce, being thin but very delicate in flavor; No. 34622, the Bushman grass, *Aristida* sp., from the Kalahari Desert, which, together with the Tsama melon, forms the principal stock and game food of the country; No. 34630, a tall-growing tropical fruit-bearing vine, *Tetrastigma harmandi*, from Luzon, which has fruits that resemble the Scuppernong grape in appearance and make a good "refresco;" Nos. 34643 to 34654, through Miss E. R. Scidmore, a collection including the adzuki and other beans used in Japan for confectionery purposes and for the manufacture of the remarkable bean cheeses, or curds, which are so much used by the Japanese; No. 34657, through Mr. C. V. Piper, a subtropical lawn grass, *Osterdamia matrella*, for use in southern Florida, Hawaii, and Porto Rico, which at Manila has proved superior to Bermuda grass; No. 34661, a remarkable hybrid eucalypt, *Eucalyptus trabuti*, discovered by Dr. Trabut in Algiers and named after him, which proves to be one of the most vigorous eucalypts yet known and is said to be the first undoubted hybrid discovered; No. 34663, a variety of potato from Bogota, Bolivia, which the sender thinks is resistant to the Phytophthora, which disease, he reports, has made the acclimatization of imported varieties there impossible; No. 34697, a Korean persimmon, *Diospyros kaki*, which can be kept until Easter; No. 34698, a variety of avocado, *Persea americana*, of which a tree 100 years old was found by Dr. Gustav Eisen in the Pincio Garden at Rome, the fruits of which were mature in November before the early frosts of that region occur; No. 34713, a small-fruited variety of Chinese persimmon from Canton, which is used there as a stock on which to graft the larger fruited forms of this fruit; Nos. 34715 to 34724, a collection of seeds of New Zealand trees and shrubs suited to practically frostless regions.

The manuscript of this inventory has been prepared by Miss May Riley, the botanical determinations have been made and the notes on geographic distribution compiled by Mr. H. C. Skeels, and the notes on nomenclature prepared under the supervision of the Committee on Scientific Orthography by Mr. S. C. Stuntz, who has also had general supervision of this inventory, as of all the publications of this office.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., July 22, 1914.

INVENTORY.

34340. COLOCASIA ESCULENTA (L.) Schott. **Dasheen.**
(*C. antiquorum* Schott.)

From Calabar, Southern Nigeria. Presented by Mr. F. Evans, Superintendent of Agriculture. Received October 4, 1912.

"The tannia or dasheen known here as 'coco yam,' or the 'little yam.' There are a number of varieties cultivated in this province; I have already seen five distinct kinds; the one I send you is called by the natives around here '*Ekuri akpan.*'" (*Evans.*)

Tuber.

34341 to 34343.

From Turkestan. Presented by Mr. Patrick O'Mara, New York, N. Y., who received them from Mr. Vaclar Niemetz, of the Russian Department of Agriculture. Received September 30, 1912.

34341. PYRUS sp. **Pear.**

34342. PLATANUS ORIENTALIS L. **Oriental plane tree.**

Distribution.—A spreading tree found in the countries bordering on the eastern end of the Mediterranean Sea from Greece to Persia. Generally cultivated as a street tree.

34343. AMYGDALUS PERSICA L. **Peach.**
(*Prunus persica* Stokes.)

"White fig-shaped." (*Niemetz.*)

34344 to 34348. STIZOLOBIUM spp.

From Parlakemedi. Presented by Mr. D. Hooper, Botanical Survey of India Department, Calcutta, India. Received September 30, 1912.

34344. STIZOLOBIUM NIVEUM (Roxb.) Kuntze. **Lyon bean.**

(Reg. No. 34700.)

34345. STIZOLOBIUM sp.

(Reg. No. 34701.)

34346. STIZOLOBIUM PACHYLOBIUM Piper and Tracy. **Fleshy-pod bean.**

(Reg. No. 34702.)

34347. STIZOLOBIUM PACHYLOBIUM Piper and Tracy. **Fleshy-pod bean.**

(Reg. No. 34703.)

34348. STIZOLOBIUM PACHYLOBIUM Piper and Tracy. **Fleshy-pod bean.**

(Reg. No. 34705.)

"All these are recognized locally under the name of '*Dukku chikkudu,*' and have been known to be in cultivation for centuries." (*Hooper.*)

34349 and 34350. SECALE CEREALE L. **Rye.**

From Rittergut Wronow, Germany. Presented by Mr. Fritz Claassen. Received October 2, 1912.

34349. "Original K. von Rümker's winter rye. No. 1." Yellow.

34350. "Original K. von Rümker's winter rye. No. 2." Green.

34351. PENTACLETHRA MACROPHYLLA Bentham.

From Calabar, Southern Nigeria. Presented by Mr. F. Evans, Superintendent of Agriculture. Received October 4, 1912.

"African oil-bean tree. Besides producing edible seeds which yield a good oil, the tree is large and well formed and useful as a pasture shade." (*Evans.*)

"This tree has large flattened seeds covered with a hard, brown seed coat. They are from 1½ to 2¾ inches in length, 1.2 to 1.8 inches in breadth, and 0.3 to 0.4 inches in thickness. The oil, which is not a drying oil, on examination by a firm of soap makers was valued at about 10 per cent less than refined cottonseed oil, since the soap made was softer. The oil cake might be of equal value with that from cotton seed, but no tests have been reported." (*Bull. Imperial Institute, vol. 5, p. 10–14, 1908.*)

Distribution.—The valley of the Kamerun and Gabon Rivers in the Senegambia region of Upper Guinea, in western Africa.

34352. JUNIPERUS CEDRUS Webb. **Juniper.**

From Teneriffe, Canary Islands. Presented by Dr. George V. Perez, through Mr. Raphael Zon, Chief of Silvics, Forest Service, United States Department of Agriculture. Received October 7, 1912.

"Dr. Perez has carried on a number of experiments with juniper berries. His advice is to separate the pulp from the seed and plunge the seed in boiling water for 10 seconds before sowing." (*Zon.*)

34353. MANGIFERA VERTICILLATA Robinson. **Bañno.**

From the Philippine Islands. Presented by Mr. William S. Lyon, Gardens of Nagtajan, Manila. Received October 5, 1912.

For description, see S. P. I. No. 34431.

34354. SALIX sp. **Willow.**

From Patagonia. Presented through Mr. Raphael Zon by Mr. Joseph E. Wing, who procured them from Señor Domingo Errecobarde, Trelew, Chubut, Argentina. Received October 7, 1912.

"Red willow."

34355. SAGUERUS MINDORENSIS (Beccari) O. F. Cook. **Palm.**

(*Arenga mindorensis* Beccari, Perkins, Fragmenta Florae Philippinae, p. 48, 1904.)

From Mindoro. Presented by Mr. E. D. Merrill, botanist, Bureau of Science, Manila, P. I. Received October 5, 1912.

Seeds of a Philippine palm were received as *Arenga mindorensis* Beccari, the name under which the species was first described. The generic name Areng was published in 1803 by Labillardière (Mém. Inst. Nat. Paris, Sci. Math. Phys., vol. 4, p. 209), with one species, *Areng saccharifera* (p. 215), now identified with *Saguerus pinnata* Wurmb. (Verh. Batav. Gen., vol. 1, p. 351, 1779), the type of the genus Saguerus. As both genera were founded on the same species, the older name Saguerus is being used instead of Areng, or Arenga.

"This palm is from 1½ to 3 meters in height; grows in thickets and on open grassy slopes. It should prove to be of decided value as an ornamental plant in greenhouses. It is probable, also, that it will grow out of doors in southern California and southern Florida; certainly in the West Indies and Central America." (*Merrill.*)

34356 to 34359.

From Piracicaba, Brazil. Presented by Dr. Clinton D. Smith, director, School of Agriculture. Received October 7, 1912.

Quoted notes by Dr. Smith:

34356. GALIPEA MULTIFLORA (Nees and Mart.) Schultes. **Guamixinga.**

"The iron cleaner, a tree called here '*chupaferro.*'" Timber used for interior construction and boxes.

Description.—A tree found in the vicinity of Rio de Janeiro, in Brazil.

34357. ASPIDOSPERMA MACROCARPON Martius. **Guatambú.**

"An important commercial wood, the '*guatambú*', of which such things as rake and hoe handles are made. It has a large pod with flat, thin seed coverings."

Distribution.—The plains of the State of Minas Geraes in Brazil.

34358. ASPIDOSPERMA POLYNEURON Muell. Arg. **Peroba.**

"The most valuable wood commercially in this part of the State."

Distribution.—A tree found in the primeval forests of the State of Rio de Janeiro, in Brazil.

34359. FIRMIANA SIMPLEX (L.) W. F. Wight.
(*Sterculia platanifolia* L. f.)

"A tree of no great value, except to embellish parks. The leaves are not metamorphosed at all, yet bear on their margins little round fruits."

34360. ACTINIDIA CHINENSIS Planch. **Yangtaw.**

From Kuling, China. Presented by Rev. John Berkin. Received October 10, 1912.

See S. P. I. No. 21781 for description.

34361. VICIA VILLOSA Roth. **Hairy vetch.**

From Guelph, Canada. Presented by Prof. A. W. Mason, Ontario Agricultural Experiment Station, through Mr. H. N. Vinall, of the United States Department of Agriculture. Received October 10, 1912.

"A strain of hairy vetch developed by the Ontario Agricultural Experiment Station. This strain seeds heavily at Guelph and seems to be adapted to the humid conditions of the East." (*Vinall.*)

34362 and 34363. PHASEOLUS spp.

Presented by Walter W. Charter, Esq., Director of Agriculture, Quilimane, Portuguese East Africa. Received September 27, 1912.

"Seeds of '*Soroko*' grown in the Zambezi delta and much relished by the natives; also a variety of so-called Indian '*Soroko*' which is also grown here." (*Charter.*)

34362. PHASEOLUS AUREUS Roxb. **Mung bean.**

"Green seeded."

34363. PHASEOLUS MUNGO L. **Urd, or black gram.**

"Brown seeded."

34364. CARISSA CARANDAS L. **Carissa.**

From India. Presented by Mr. Alfred Bircher, of the Middle Egypt Botanic Gardens, Matania, Saff, Egypt. Received October 10, 1912.

"A thorny bush with small white flowers and black berries, good for sherbet making. The red juice, if not diluted with water, coagulates in a short time." (*Bircher.*)

34366. STERCULIA MACROPHYLLA Ventenat. **Bangilan.**

From Penang, Malay Peninsula. Presented by Mr. Wilson Popenoe, Altadena, Cal. Received October 14, 1912.

"A magnificent ornamental tree, native of the Malay Peninsula. It is a rapid grower, attaining an ultimate height of 50 feet or more, with oval leaves 10 to 12 inches long and 8 to 10 inches wide, slightly acute at the apex, dark green and sparsely hairy above, covered with a ferruginous tomentum below.

"The fruit is a 1 to 3 seeded capsule, about 2 inches in length and brilliant orange scarlet when ripe. These capsules are borne in the greatest profusion on panicles which hang down from every branch, and as the foliage is rather scant they produce a blaze of color which is visible some distance away. The oval black seeds, of a satiny luster, are exposed by the dehiscing of the capsules and add to the ornamental effect when near by.

"This would certainly be a great acquisition for such countries as Hawaii and Porto Rico, and possibly southern Florida and the most protected locations in southern California. Even when not in fruit the tree presents a very good appearance with its straight trunk and pyramidal head of foliage." (*Popenoe, in letter dated October 1, 1912.*)

Distribution.—A large tree found on the islands of the Malay Archipelago.

34367. CASSIA BEAREANA Holmes.

From East Africa. Presented by Rev. Pliny W. Keys, superintendent, Limpopo district Methodist Episcopal Mission, Inhamban. Received September 30, 1912.

"A small tree attaining 20 to 30 feet; leaves are about 8 to 10 inches long. The seeds are blackish brown, oval, and about seven-sixteenths of an inch in length." (*E. M. Holmes.*)

34368. CANARIUM OVATUM Engler. **Pili nut.**

From the Philippine Islands. Presented by Mr. E. D. Merrill, botanist, Bureau of Science, Manila. Received October 14, 1912.

"The '*pili*' nut is locally very highly esteemed and is now being exported in considerable quantities. Treated exactly as salted peanuts are, the '*pili*' can not be surpassed as a table dish. The nuts are very hard and thick walled and rather difficult to crack. The local practice is to crack the nuts, then roast the seeds and remove the thin brown coating after roasting, as it is rather difficult to remove this coating from the fresh seeds." (*Merrill.*)

34378 and 34379.

From Soochow, China. Presented by Mr. N. Gist Gee, Soochow University. Received October 14, 1912.

34378. LILIUM sp. **Lily.**

"*Pah hoen* or *Pah huh*. This is said to have the power of rapidly restoring a run-down system. The outer parts are removed, and the inner softer ones have the epidermis peeled off, and then they are cooked and eaten with sugar. I have never eaten this and can not vouch for its qualities." (*Gee.*)

Bulbs.

34378 and 34379—Continued.

34379. Colocasia sp.

"*Eu nar.* This grows in a sandy soil, and under proper cultivation is sure to give a good crop. It is common in the market at this season, and is comparatively cheap." (*Gee.*)

Tubers.

34380. Pelargonium sp. **Rose geranium.**

From Port Louis, Mauritius. Presented by Mr. G. Regnard. Received October 15, 1912.

Cuttings.

34381 to 34409.

From Chile. Presented by Mr. Julio M. Foster, Santiago, who procured them from Mr. Adrian Sepuloeda, of the Ranch "San Fabian de Alico." Received October 7, 1912.

Quoted notes by Mr. Foster, except as indicated:

34381. Nothofagus dombeyi (Mirb.) Oersted. **Coihue.**
(*Fagus dombeyi* Mirb.)

(No. 1.) "A large and beautiful tree; useful as timber."

"Differs from *Nothofagus obliqua* and *N. procera* in appearance due to its persistent foliage of intense green. A majestic and elegant tree, the largest native Chilean tree. It does not need a strong fertile soil like the roble; its needs are more plebeian, and it may prosper in moist soils, unsuited for cultivation, thanks to the fact that the roots extend parallel to the surface of the soil, which gives it the strength to resist the blasts of a heavy wind. The wood replaces that of the roble [S. P. I. No. 34385] with perfect success when used in place of it." (*Castillo and Dey, Jeografia botanica.*)

Distribution.—A large tree found in the vicinity of Concepcion, in Chile.

34382. Myrtus sp. **Luma.**

(No. 3.) "Very tall; of small diameter, compact; used for cart tongues."

34383. Lithrea caustica (Mol.) Hook. and Arn. **Litre.**
(*L. venosa* Miers.)

(No. 4.) "Remarkably hard; unsplittable; excellent for wagon hubs."

34384. Nothofagus obliqua (Mirb.) Blume. **Gualo.**
(*Fagus obliqua* Mirb.)

(No. 5.) "Large tree, very hard."

34385. Nothofagus antarctica (Forst.) Oersted. **Roble.**
(*Fagus antarctica* Forst.)

(No. 6.) "Valuable timber for general use. Known as Chile oak."

"Grown in large numbers somewhat distant from the river courses and the center of population. Its height reaches 35 meters with a diameter of 4 meters. Sheds its leaves in winter. The wood varies with the nature of the soil; it is called hualle when it comes from the roble which has not formed heartwood, reserving the name pellin for the reddish and indestructible wood furnished by specimens which have grown in dry soil. The streets of the city of Valdivia were paved with this wood, and the railway ran over the sleepers of the same wood." (*Castillo and Dey, Jeografia botanica.*)

34381 to 34409—Continued.

34386. NOTHOFAGUS PROCERA (Poepp. and Endl.) Oersted. **Rauli.**
(*Fagus procera* Poepp. and Endl.)

(No. 7.) "Of large dimension and very valuable for furniture."

"Because of the value of its wood, which is used for the same purpose as the roble, the excessive exploitation has decimated this tree in the province of Valdivia. The wood of this tree is like that of the roble, red and compact, although of short life in contact with water. It is used for flooring and in carpentry and cooperage. Like the roble, the tree drops its foliage in winter." (*Castillo and Dey, Jeografia botanica.*)

Distribution.—A large forest tree growing on the slopes of the Andes, in Chile.

See No. 26324 for previous introduction.

34387. PERSEA LINGUE (R. and P.) Nees. **Lingue.**

(No. 8.) "Large dimension; bark very superior for tanning purposes."

"The hardiness which dominates in this plant favors a widespread distribution in the country. It grows prosperously in the vicinity of the sea and thence to a considerable altitude above its level, on the river banks and on the summits of bare arid mountains, in the stagnant meadows, and in the hot, stony deserts. The color of its wood varies from clear yellow to red and much resembles that of the caoba, on account of the beautiful veins which run through it, and in consequence of this beauty it is preferred for furniture, and in hydraulic works for its great resistance and duration. The tree also supplies the best tan bark of all our varied flora, bark which in Valdivia has given richness to one of the first and most flourishing industries. The leaves of the lingue are highly poisonous, and many animals pay for their avidity in eating them with their lives. Its fruits afford the food best liked by the wild pigeons, and give a bitter and repugnant flavor, which may be avoided by removing the crop of the bird when first killed." (*Castillo and Dey, Jeografia botanica.*)

34388. LAURELIA SEMPERVIRENS (R. and P.) Tul. **Laurel.**
(*L. aromatica* Juss.)

(No. 10.) "Large tree; good timber."

"This species owes its name, *aromatica*, to the fragrance of its leaves. It is a tree comparable to the roble (*Nothofagus obliqua*) for its size, but differs in the inferior quality of its wood, which, nevertheless, is used very largely because of the ease of working it and the abundance of the tree. In color it varies from the white of the poplar to the brown of cinnamon, sometimes having a lemon-yellow and an olive tint alternating in the same piece. Has the disadvantage that it splits and frequently warps, due to the large amount of sap it contains, which is retained on account of the poor selection of the period of cutting." (*Castillo and Dey, Jeografia botanica.*)

34389. CRYPTOCARYA RUBRA (Mol.) Skeels. **Peumo.**
(*C. peumus* Nees.)

(No. 11.) "Large tree; edible fruits."

34390. GEVUINA AVELLANA Molina. **Avellano.**

(No. 12.) "Good size tree; good timber; abundant nuts, like hazelnuts."

34391. EUCRYPHIA CORDIFOLIA Cav. **Palo santo.**

(No. 13.) "Large shrub with beautiful flowers in abundance."

34381 to 34409—Continued.

"Tree growing to 15 to 18 meters in height, with aromatic fugacious-petaled flowers which gradually change to all shades which lie between the white and the copper red, which predominates afterwards in the inflorescence up to the time of the fruit maturing. The sweetish sap is eagerly sought by many insects, which, establishing themselves in the tree, finally deposit their eggs in the bark, which when hatched give rise to injurious larvæ which bore into the wood, making it impossible to take advantage of its fine structure and beauty." (*Castillo and Dey, Jeografia botanica.*)

34392. (Undetermined.)

(No. 14.) "Large shrub with beautiful flowers in abundance and yielding edible fruit."

34393. PEUMUS BOLDUS Molina. **Boldo.**

(No. 15.) "Very large tree with superb foliage and contains medicinal properties used in treatment of liver trouble."

"A small ornamental evergreen tree, with exceedingly hard wood, which is utilized for many kinds of implements. The bark furnishes dye material. The fruits are of aromatic and sweet taste." (*F. von Mueller, Select Plants.*)

34394. (Undetermined.)

(No. 17.) "Large shrub producing abundant berries good for cider."

34396. SOPHORA sp. **Pilo.**

(No. 19.) "Large tree, useful for wagon spokes."

34397. MAYTENUS BOARIA Molina. **Maiten.**

(No. 20.) "Large and beautiful ornamental tree."

"Reaches a height of 12 meters but of small diameter; this tree is without doubt the most beautiful of all native Chilean trees in foliage, which is tremulous, waving in the lightest breeze. Its leaves, of great value for forage, are sought eagerly, like those of the weeping willow, by hungry cattle. There are varieties of the tree which furnish wood finely veined with reddish and olive tints." (*Castillo and Dey, Jeografia botanica.*)

34399. SOPHORA MACROCARPA Smith. **Mayo.**

(No. 23.) "Flowering shrub."

34400. KAGENECKIA OBLONGA Ruiz and Pavon. **Guayo.**

(No. 24.) "Flowering shrub."

"This tree, known in Chile as *Lyday*, furnishes a wood used for building purposes, while the leaves, being very bitter, are used by the inhabitants to cure intermittent fever." (*A. A. Black, in Lindley, Treasury of Botany.*)

34401. (Undetermined.)

(No. 25.) "Shrub affording good forage for browsing"

34402. ESCALLONIA MYRTOIDEA Bertero. **Lum.**
(*E. arguta* Presl.)

(No. 26.)

Description.—A shrub found along streams in the vicinity of Rancagua, in Chile.

34403. ESCALLONIA PULVERULENTA (R. and P.) Persoon. **Mardroña.**

(No. 27.)

Distribution.—A shrub growing in the vicinity of Concepcion, Chile.

34404. (Undetermined.) **Chuplin.**

(No. 28.) "Flowering shrub."

34381 to 34409—Continued.

34405. ESCALLONIA REVOLUTA (R. and P.) Persoon. **Siete camisas.**

(No. 29.) "Flowers very beautiful."

"In Valdivia is frequently called *siete camisas* (seven shirts). It is scarce in the central valley of Chile, but frequent in the Cordillera of Santiago. In Valdivia it grows in moist soils preferably and rarely reaches a height of 5 meters, sending out branches from the base of its slender trunk. Its light soft wood is used only for fuel. (*Castillo and Dey, Jeografia botanica.*)

Distribution.—A shrub with racemes of white flowers found in the vicinity of Concepcion, in Chile.

34406. MELADENDRON CHILENSE Molina. **Palo negro.**

(No. 30.) "Large black tree."

34407. QUILLAJA SAPONARIA Molina. **Quillai.**

(No. 31.) "Soap tree, very large. This is a very valuable tree and should grow well in many parts of the United States."

34408. CHUSQUEA sp. **Bamboo.**

(No. 32.)

34409. LAPAGERIA ROSEA Ruiz and Pavon. **Copigue.**

(No. 33.) "Climbing vine; very rich flower."

34412. MANGIFERA INDICA L. **Mango.**

From Honolulu, Hawaii. Presented by Mr. E. V. Wilcox, Hawaii Agricultural Experiment Station. Received October 15, 1912.

"*Oahu.* Nearly seedless." (*Wilcox.*)

34413. PARTHENIUM ARGENTATUM A. Gray. **Guayule.**

From Saltillo, Mexico. Presented by Mr. Philip E. Holland, American consul. Received October 15, 1912.

"The plant grows along the northern frontier of Mexico, especially in dry and mountain lands. It reaches an average height of 25 inches, weighs about 20 ounces, and its average thickness at the base is 1½ inches. In proportion to its size, each plant yields 10 per cent of pure rubber. The Mexican guayule does not produce the same milky sap common to other rubber plants.

"Scarcely any industry in Mexico has experienced so rapid a development as that of guayule rubber. Since its appearance in the market its price has advanced amazingly. In 1903 it sold for $5 to $7 per ton; only four years later, in 1907, the price had risen to $50 per ton, and to-day (1911) its value is approximately $100 per ton.

"The most valuable guayule plantations are found in the vast desert of Coahuila, a State whose wealth was made fabulous by guayule production. The States of Nuevo Leon, Chihuahua, and Tamaulipas also produce guayule in large quantities." (*Extract, Bul. Amer. Rep., 1911.*)

34414. PRUNUS HUMILIS Bunge.

From Chevy Chase, Md. Presented by Mr. David Fairchild, of the Bureau of Plant Industry, U. S. Department of Agriculture. Received October 17, 1912.

"Seeds collected from a plant presented by the Arnold Arboretum and grown in Maryland since 1906. A remarkable ornamental free and early flowering plum. Its dwarf habit makes it suited for cultivation about city houses in dooryard plantings. Prof. C. S. Sargent informed me that the seed from which this plant came he bought of a fruit vendor at a railway station between Tientsin and Peking." (*Fairchild.*)

Distribution.—The provinces of Chihli and Shantung, in China.

34415. Berberis vulgaris L. **Barberry.**

From Sherborn, Mass. Presented by Miss Martha L. Loomis. Received October 15, 1912.

"A barberry found growing wild here which bears seedless fruits." (*Loomis.*)

34416. Phaseolus angularis (Willd.) W. F. Wight. **Adzuki bean.**

From Cabanas, Cuba. Presented by Mr. S. H. Carnahan. Received October 5, 1912.

"Last year I found a few plants of what was to me a new bean. The plant is small, 4 to 10 inches tall, with yellow blossoms, but the pods set on more like a cowpea than like a white soy bean of the north. They roast nicely and make a good cereal coffee; also seem to cook as a soup bean, except a little slow to soften." (*Carnahan.*)

"These are much employed in Japan for human food. The commonest method of eating them is to make a meal from the beans, from which cakes and confections of various kinds are made." (*C. V. Piper.*)

34417. Acrocomia sp.

From South America. Presented by Mr. Thomas R. Gwynn, Horqueta, Paraguay. Received October 14, 1912.

"*Mbocata* (coco). The coco, from the root up, is most valuable; when it is very young, the roots, so the natives tell me, can be used as mandioca; when matured, from a foot or two above the roots toward the bud of the plant makes excellent starch, just as good as that furnished by the mandioca plant; besides, this part of the plant is a nourishing food, without any preparation, for all kinds of live stock and fowls. The leaves make the best kind of thread and twine, and woven roughly by hand the Indians make hammocks that for endurance are par excellence.

"The coco, like all the family of palms, has a long, straight body, sometimes 80 feet in height, and from its tip top sends out its long, feathery, waving leaves. The fruit is formed from the base of the leaves and resembles huge bunches of grapes in shape. From two to four bunches are furnished every year from a single tree. Another thing, the oil from the kernel is better than any olive oil to be found in this country, and the soap is equal to any in use for the toilet. The one drawback is the thorns on the stems of the leaves and on the trunk of the tree. Sometimes, however, the trunks are entirely free from thorns, especially when very tall and in full vigor. The leaves also give food to stock, and in droughts, when pasture fails, the natives fell the trees for their horses and cattle and split open the trunks, that the cattle may eat the pith." (*Gwynn.*)

34418. Psidium guajava L. **Guava.**

From Dehra Dun, India. Presented by Miss Louisa M. Kelso, American Presbyterian Mission. Received October 21, 1912.

These seeds were procured at the suggestion of Mr. Charles F. Morrison, Apopka, Fla.

"I saw these trees growing in the compound of the American Presbyterian Mission, Dehra Dun, United Provinces, India, in 1882. The tree has a single trunk, which attains a height of 15 to 20 feet and is very prolific. It is perfectly hardy in that climate. Thin ice forms in the open every winter. Practically the entire annual rainfall, 140 inches, falls in three months.

"This is the finest eating guava I have ever seen and makes jelly equal to any other. The fruit is yellow, smooth, thin skinned, and elongated, not spherical, slightly larger than the yellow Cattley guava. The seeds are in a small spherical mass at the center, leaving a large quantity of white pulp free from seeds." (*Morrison.*)

34419. RUBUS sp. **Raspberry.**

From Mokanshan, Shanghai, China. Presented by Rev. J. M. W. Farnham. Received October 5, 1912.

"This plant grows in the edge of a hedge or in a shady spot and in no respects resembles the raspberry bush. This thing is of no use in itself, bearing a very little fruit, resembling a raspberry in color, shape, and style, with a slightly acid taste. It might be of interest for hybridizing with the raspberry." (*Farnham.*)

34420. NYPA FRUTICANS Wurmb. **Nipa palm.**

From Manila, Philippine Islands. Presented by Mr. E. D. Merrill, botanist, Bureau of Science. Received at the Plant Introduction Field Station, Chico, Cal., October 15, 1912.

"This species grows only along the banks of tidal streams, where it is subject to overflow by brackish water. The plant is one of great importance in the Philippines, and most of the houses in the Archipelago are roofed with thatch made of the leaves. Commercially, however, its great value lies in its production of alcohol, of which enormous quantities are distilled annually from the fermented sap.

"I suspect that the species will grow in southern Florida and will certainly grow in most parts of the West Indies and Central America if planted in its proper habitat." (*Merrill.*)

34421. LANSIUM DOMESTICUM Jack. **Langsat.**

From Mindanao, Philippine Islands. Presented by Mr. Wilson Popenoe, Altadena, Cal. Received at the Plant Introduction Field Station, Chico, Cal., October 15, 1912.

For description, see S. P. I. No. 34496.

34422. ABROMA AUGUSTA (L.) L. f.

From Calabar, Southern Nigeria, Africa. Presented by Mr. Frank Evans, Superintendent of Agriculture. Received September 28, 1912.

A large open bush widely distributed throughout the hot, moist portions of India, now cultivated in Africa. The bark affords a strong white bast fiber, which is easily separated by retting in water or by decortication. It is readily propagated by cuttings and may be made to yield annually two or three crops of shoots from 4 to 8 feet long, but requires rich land and plenty of moisture. The fiber, which is said to be stronger than sunn hemp, is strong, white, and clean, and is chiefly used for cordage by the natives. (*Adapted from Watt, Commercial Products of India, and Dodge, Useful Fiber Plants.*)

Distribution.—A shrub found in the warmer parts of India and eastward to China and the Philippines.

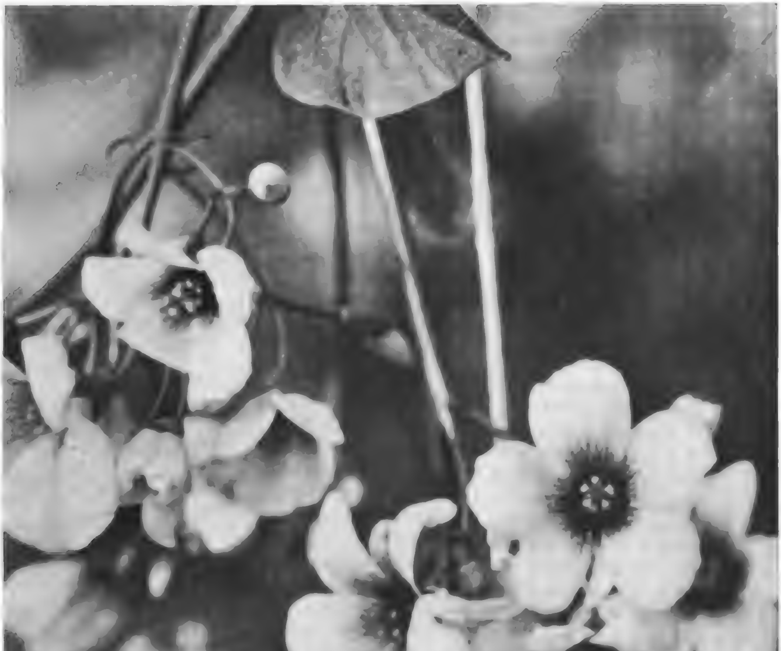
34423. ALEURITES FORDII Hemsley. **Wood-oil tree.**

From Biloxi, Miss. Presented by Mr. Aristide Hopkins. Received October 22, 1912.

"These nuts were procured from a tree sent out from the Office of Foreign Seed and Plant Introduction under S. P. I. No. 21013. The nuts are all very large size, and most of them contain eight seeds or kernels instead of five, as in the ordinary form.

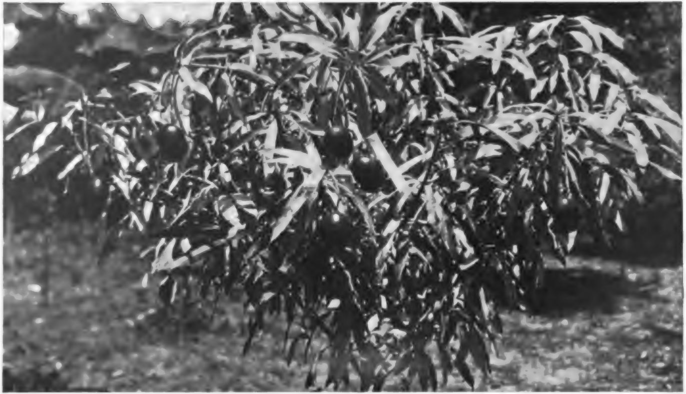
"We believe that this is either a seed or a bud variation." (*P. Bisset.*)

For an illustration of the male blossoms of the wood-oil tree, natural size, see Plate I.



MALE FLOWERS OF THE TUNG-SHU, OR CHINESE WOOD-OIL TREE (ALEURITES FORDII). (S. P. I. NOS. 34423 AND 34438.)

These flowers are white, with yellowish throats turning to red, and the tree when in full bloom is almost as ornamental as a catalpa. The chief interest attached to these flowers is their significance as showing the adaptability of the wood-oil tree for cultivation in northern Florida. The tree bearing these flowers stands on the property of Mr. W. H. Raynes, at Tallahassee, Fla. It bore two bushels of fruit last season. Pendent cluster, photographed by Mr. David Fairchild, Tallahassee, Fla., April 2, 1914. (Natural size.)



MANGO OF THE DIVINE VARIETY IN FRUIT AT THE UNITED STATES PLANT INTRODUCTION FIELD STATION, MIAMI, FLA. (S. P. I. NOS. 34444 AND 34445.)

This variety was introduced from Trinidad, British West Indies, in 1907. It has proved to be a vigorous grower and is now in fruit for the first time. It is one of the few named varietes cultivated in the French West Indies, and is reported unusually free from fiber. Photographed by Mr. Edward Simmonds, Miami, Fla., May, 1914.

34424 and 34425.

From Venezuela. Presented by Mr. Elio J. Burguera, Tovar, Merida, through the American consul, Maracaibo. Received October 17, 1912.

34424. HORDEUM VULGARE L. **Barley.**

34425. TRITICUM AESTIVUM L. **Wheat.**
(*T. vulgare* Vill.)

34426 and 34427. ZEA MAYS L. Pop corn.

From Granada, Spain. Procured through Mr. W. T. Swingle, of the Bureau of Plant Industry, January, 1912. Received October 23, 1912.

34426. (Ear No. 1.) **34427.** (Ear No. 2.)

"A variety of pop corn with red pericarp, many of the seeds with purple aleurone. Plants grown from the two ears secured by Mr. Swingle in the season of 1912 produced from one to four well-formed ears per stalk. The plants possess the peculiar characteristic of producing the silk before the pollen of the same plant is shed, thus affording a natural means of avoiding self-pollination." (*G. N. Collins.*)

34429 and 34430. Tree fern.

From Colombo, Ceylon. Presented by Mr. C. K. Moser, American consul, who received them from the curator of the Hakgala Gardens, Newara Eliya. Received October 21, 1912.

34429. ALSOPHILA CRINITA Hooker.

"A native Ceylonese species very rarely in cultivation." (*Moser.*)

34430. HEMITELIA sp.

Spores of this tree fern were received under the name *Hemitelia walkerae*, but the place of publication of this name has not yet been found.

34431. MANGIFERA VERTICILLATA Robinson. Baúno.

From the Philippine Islands. Presented by Mr. W. S. Lyon, Manila, who procured it through Mr. P. J. Wester, Bureau of Agriculture. Received October 26, 1912.

"A large tree sometimes exceeding 12 meters in height with a trunk 50 centimeters in diameter, growing in inundated regions in several parts of Mindanao, being particularly abundant around Butuan and in many places in the Agusan Valley and Davao and occurring also in the Sulu Archipelago. The baúno resembles the mango in habit and appearance, though it is somewhat more upright in habit, of sparser foliage, more gnarled, and less attractive in appearance. The leaves are 12 to 18 centimeters long, elliptical to lanceolate or oblanceolate, coriaceous, smooth, with a prominent midrib. The flowers are small, blue, and appear in terminal panicles like the mango. There is considerable variation in the appearance, size, and quality of the fruit on the numerous trees. The fruit of the best is somewhat larger than a Carabao mango, from 11 to sometimes exceeding 13 centimeters in length, with an equatorial diameter of 7 to 8 centimeters, oblong oval to pyriform; stem usually inserted obliquely in a more or less irregular sinus; stigmatic area depressed; surface smooth; color yellowish green; lenticels numerous, small; skin very thin and tender, adhering closely to the flesh; flesh white, very juicy, rich, subacid, quite aromatic, of excellent flavor, partaking somewhat of the flavor of apricot and soursop combined. The one seed is monoembryonic, large, and encased in matted coarse fibers that penetrate the flesh to a greater or less extent. The tree blooms in July and August, and the fruit ripens in August and September. The largest and best flavored baúnos were obtained in Zamboanga; very good fruits were found in Davao and Butuan, and some that were very poor in Butuan and Surigao. The baúno is evidently very variable pomologically, and the trees also seem to differ greatly in productiveness. The excellent flavor of the baúno assures this fruit a place among the tropical fruits on a par with the mango as soon as a facile method of propagating the species asexually shall have been discovered, so that material of the best seedlings may be obtained and systematic breeding begun, reducing the fiber in the fruit. Botanically as well as horticulturally the baúno is a new fruit, having been named and described last year." (*Wester.*)

34432. CORDYLINE BANKSII Hook. f. **Palm lily.**

From North Island, New Zealand. Presented by Mr. D. Petrie, Epsom, Auckland. Received October 24, 1912.

"A fine, hardy, palmlike species." (*Petrie.*)

"Distinguished from *Cordyline australis* by its much longer leaves, 5 to 6 feet in length, and its drooping panicle of flowers." (*Laing and Blackwell, Plants of New Zealand.*)

Distribution.—A treelike liliaceous plant often 10 feet high, found in the northern and middle islands of New Zealand.

34433. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Puerto Bertoni, Paraguay. Presented by Dr. Moisés S. Bertoni, Estacion Agronomica. Received October 25, 1912.

34434 to 34436.

From Germany. Presented by Rev. J. B. Katzner, Collegeville, Minn. Received at the Plant Introduction Field Station, Chico, Cal., October 19, 1912. Numbered October 25, 1912.

Scions of the following:

34434 and **34435.** PRUNUS spp. **Plum.**

34434. Blue plum. **34435.** Large and prolific prune.

34436. PRUNUS CERASUS L. **Cherry.**

Sweet.

34437. MACADAMIA TERNIFOLIA F. Muell. **Queensland nut.**

From Sydney, New South Wales. Purchased from Anderson & Co. Received at the Plant Introduction Field Station, Chico, Cal., October 21, 1912.

For description, see S. P. I. No. 18382.

34438. ALEURITES FORDII Hemsley. **Wood-oil tree.**

From Cairo, Ga. Presented by Mr. J. B. Wight; produced by trees sent him under S. P. I. No. 21013, March, 1908. Received October 30, 1912.

For an illustration of the male blossoms of the wood-oil tree, natural size, see Plate I.

34439. STIZOLOBIUM sp.

From Coimbatore, India. Presented by Mr. D. Hooper, economic botanist, Botanical Survey of India Department, Calcutta, India. Received October 30, 1912.

"This seed was sent in under the name *Kakkavalli*, but that name has not heretofore been applied to the Stizolobium species.

"While the plants resemble the Florida velvet bean very closely, they are not suitable for forage, owing to the trouble caused by the stinging hairs." (*C. V. Piper.*)

34440 to 34454. MANGIFERA INDICA L. **Mango.**

From Trinidad, British West Indies. Presented by Mr. W. B. Freeman, Assistant Director of Agriculture, Port of Spain. Received October 29, 1912.

Six cuttings of each of the following:

34440.	*Julie Martinique.*	**34448.**	*Chinois Martinique.*
34441.	*Madame.*	**34449.**	*Julie Leotaud.*
34442.	*Neelum.*	**34450.**	*Martin.*
34443.	*Amelia Martinique.*	**34451.**	*Walajah Pasand.*
34444.	*Mistake Divine.*	**34452.**	*Tamancha.*
34445.	*Divine Martinique.*	**34453.**	*Bombay Special.*
34446.	*Minnie.*	**34454.**	*De Boissière.*
34447.	*Salem.*		

For an illustration of a mango tree of the Divine variety (S. P. I. No. 21516) in fruit, see Plate II.

34455 to 34470.

From Lucknow, India. Presented by Mr. Wilson Popenoe, Altadena, Cal. Received October 26, 1912.

Quoted notes by Mr. Popenoe:

34455 to 34457.

34455. AMARANTHUS MANGOSTANUS Juslenius. **Amaranth.**

"*Chaulai Sag.*"

Distribution.—Throughout India and Ceylon in cultivated ground; used as a potherb.

34456. PORTULACA OLERACEA L. **Purslane.**

"*Kulfa Sag.*"

34457. AMARANTHUS GANGETICUS L. **Amaranth.**

"*Lal Sag.*"

"A tall, soft-wooded annual, extensively cultivated throughout India for the sake of the leaves, which are used in the same manner as spinach."

Distribution.—Throughout the Tropics; cultivated as a potherb in India.

34458. BENINCASA HISPIDA (Thunb.) Cogniaux. **Wax gourd.**
(*B. cerifera* Savi.)

"'Petha.' A climber, annual, with a large pumpkinlike fruit, smooth when ripe, and covered with a waxy bloom. It is quite common around Seharunpur. When in a young state the fruits form an ingredient of vegetable curries, but their principal use is for making a sweetmeat which greatly resembles 'Turkish delight.' When cooked and used as a vegetable the fruits are rather tasteless."

34459 to 34462. CITRULLUS VULGARIS Schrad. **Watermelon.**

34459. *Early Lucknow.*

34460. *Farrukhabad.*

34461. "Red, bottle shaped, from Shahjehanpur."

34462. "Round, black-red, from Seharunpur."

34463. CUCURBITA PEPO L. **Pumpkin.**

"'*Kaddu,*' common variety. The pumpkin is one of the commonest of Indian vegetables."

34455 to 34470—Continued.

34464. Cucumis melo L. **Muskmelon.**

"'*Kakri*,' '*Phoot*' variety. This is a variety of the common melon, with long cucumberlike fruits. When in a young state they are covered with soft downy hairs and are of a pale-green color, changing to yellow when ripe. When young they are eaten raw like cucumbers, which they greatly resemble. When ripe they are eaten as a melon, but are said to be of very poor flavor."

34465. Abelmoschus esculentus (L.) Moench. **Okra.**
(*Hibiscus esculentus* L.)

"'*Bhindi torai*,' '*Nasik*.' Soft variety. One of the best varieties of okra."

34466. Hibiscus sabdariffa L. **Roselle.**

"'*Patwa*.' This is the red-stemmed variety, of which the calyxes are dark red, and is considered the best."

34467. Luffa cylindrica (L.) Roemer. **Loofah gourd.**
(*L. aegyptiaca* Miller.)

"'*Ghiya torai*.' An annual of climbing or trailing habit, resembling the common luffa gourd, *L. acutangula*. The smooth cylindrical fruit is a foot long, sometimes even more, and when immature is considered a very good vegetable."

34468. Momordica charantia L. **Carilla.**

"'*Karela*.' Rainy-season variety. A slender climbing or trailing annual. Fruit is from 5 to 7 inches long, oblong, warty or tubercled on the surface, dark green when young, changing to orange when ripe. When prepared in a vegetable curry, the manner in which it is commonly used, the fruit possesses an agreeable bitterness. It should be grown on a trellis."

Distribution.—Throughout India, and generally cultivated in the Tropics.

34469. Citrullus vulgaris Schrad. **Watermelon.**

"*Tinda*."

34470. Luffa acutangula (L.) Roxburgh. **Loofah gourd.**

"*Arrow torai*."

Distribution.—Generally cultivated in the Tropics.

34471. Panax quinquefolium L. **Ginseng.**
(*Aralia quinquefolia* Decne. and Planch.)

From Songdo, Chosen (Korea). Purchased from Mr. J. Arthur Thompson, through Mr. George L. Shaw, of Manchuria. Received November 1, 1912.

34472. Feroniella lucida (Scheff.) Swingle. **Kawis.**

From Saigon, Cochin China. Presented by Mr. P. Morange, Director of Agriculture, Saigon. Received November 4, 1912.

See S. P. I. No. 25888 for description.

34473. Asparagus filicinus Hamilton. **Asparagus.**

From India. Presented by Mr. Norman Gill, superintendent, Kumaun Government Gardens, Jeolikote, United Provinces. Received November 4, 1912.

34474. Aleurites moluccana (L.) Willd. **Lumbang.**
(*A. triloba* Forst.)

From Costa Rica. Presented by Mr. A. Alfaro, director, Garden of the National Museum, San Jose. Received November 4, 1912.

"Tree 10 meters high, 60 centimeters in diameter." (*Alfaro*.)

34475. ORYZA SATIVA L. **Rice.**

From Madagascar. Presented by Mr. Stuart R. Cope, London, England. Received October 25, 1912.

"*Tsimakata.* Dry mountain rice." (*Cope.*)

34476 to 34478.

From German East Africa. Presented by the Usumbwa Co., Usumbwa, Post Tabora. Received October 28, 1912.

Quoted notes taken from the Usumbwa Co.'s letter:

34476. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

"Grows here to a height of 6 to 9 feet, but takes from five to six months to ripen. The crop is enormous, and many different kinds of the plant are grown by the natives."

34477. ELEUSINE CORACANA (L.) Gaertn. **Ragi.**

"A quick-growing and much-planted grain of 1½ to 2 feet in height. The crop ripens in about three months."

34478. CASTALIA STELLATA (Willd.) Salisbury. **Water lily.**
(*Nymphaea stellata* Willd.)

"Known as the 'sweet-scented blue lotus.' The flowers measure 3 to 4 inches across and are of a light-blue color with yellow center."

Distribution.—In rivers, lakes, and ponds in extratropical Africa and in India.

34479 to 34481. ROSA spp. **Rose.**

From Erfurt, Germany. Purchased from Haage & Schmidt. Received November 6, 1912.

Ten cuttings each of the following:

34479. ROSA DAMASCENA TRIGINTIPETALA (Dieck) Koehne.

"A single-flowered strong-growing form of *Rosa gallica* var. *damascena* grown in Bulgaria for perfume purposes." (*W. Van Fleet.*)

34480. ROSA GALLICA L.

"*Byzantina.* Double-flowered dwarf form, cultivated for perfume purposes in Bulgaria, France, and Germany." (*W. Van Fleet.*)

34881. ROSA GALLICA L.

Conditorum. This was received as *Rosa conditorum*, which seems never to have been published as a species.

"Double-flowered dwarf form, cultivated for perfume purposes in Bulgaria, France, and Germany." (*W. Van Fleet.*)

34482. PRUNUS FRUTICOSA Pallas. **Cherry.**
(*P. chamaecerasus* Jacq.)

From Omsk, Siberia. Presented by Mr. A. F. Reinecke, American consular agent. Received October 31, 1912.

See S. P. I. No. 32224 for previous introduction.

34484. CITRULLUS VULGARIS Schrad. **Watermelon.**

From the Union of South Africa. Presented by Mr. J. Burtt Davy, Department of Agriculture, Pretoria. Received November 7, 1912.

"*Tsama melon.* Collected in the heart of the Kalahari Desert. It is one of the most useful desert plants, being the sole source of water supply for cattle trekking through the desert in the dry winter months; animals which are eating the melons do not seem to require any water. When the water supply of travelers gives out, the moisture is extracted from these melons for drinking purposes and is often used by humans." (*Davy.*)

34485 to 34488.

From Australia. Presented by Mr. J. A. Hamilton, Tolga, Queensland. Received November 7, 1912.

Quoted notes by Mr. Hamilton:

34485 to 34487. EUCALYPTUS spp. **Eucalyptus.**

"All useful and ornamental trees."

34485. EUCALYPTUS sp.

"Bloodwood."

34486. EUCALYPTUS sp.

"Grows 3,000 feet above sea level. Latitude 17° 30′ south."

34487. EUCALYPTUS SIDEROPHLOIA Bentham.

"Black ironbark. Tropical variety."

34488. XANTHORRHOEA sp. **Grass-tree.**

"This is not only ornamental, but a valuable resin can be obtained from it, which is used for varnish. It ought to do very well in your Southern States; the poorer the soil the better, so long as it gets the heat."

34489 and 34490. ELEUSINE CORACANA (L.) Gaertn. **Ragi.**

From Mysore, Bangalore, India. Presented by Mr. H. V. Krishnayya, acting officer in charge of the Agricultural Department. Received November 7, 1912.

Quoted notes by Mr. Krishnayya:

34489. "*Kar.* Sown in May and harvested in September. Also grown under irrigation."

34490. "*Hullubilé.* Sown in July and harvested in November. Grain considered to be the best of all varieties."

34491 and 34492. IPOMOEA CALOBRA Hill and Mueller. **Calobra.**

From Australia. Presented by Prof. Manson Bailey, Department of Agriculture, Brisbane, Queensland. Received November 7, 1912.

"A native convolvulus known by the natives of the Barcoo in Queensland under the name of '*Calobra*,' and by the natives of the Moonie and Balonne Rivers as '*Weir*.' It is a tall twiner with a somewhat turnip-shaped tuber. The leaves are heart shaped, somewhat oblong, and often measure 4 inches in breadth. The flower is nearly 3 inches broad, is reddish at the center, and paler toward the outside. The seed capsule is egg shaped, going to a point about 1 inch long and containing four seeds. The seeds are dark brown and about one-half inch long. The plant, which is of the sweet-potato family, is to be found in the Mulga shrubs." (*Bailey, in letter of September 28, 1912.*)

34491. Seeds. **34492.** Tubers.

34493. CUDRANIA TRICUSPIDATA (Carr.) Bureau. **Che.**
(*Maclura tricuspidata* Carr.)

From Augusta, Ga. Secured by Mr. Peter Bisset, of the Office of Foreign Seed and Plant Introduction, from P. J. Berckman's Co. Received November 11, 1912.

"These fruits are from one of Mr. Wilson's introductions; an edible fruit, allied to the Maclura (*Toxylon pomiferum*), or Osage orange." (*Bisset.*)

"Apparently this fruit will thrive down South, and it is, as you say, both interesting and beautiful. In China it occurs throughout the Yangtze Valley, from river level to 3,000 feet altitude. It varies from a small, much-branched, thorny bush to a tree 40 to 50 feet high. The fruits are eaten by the Chinese, but are not much esteemed. In Szechwan the leaves are used for feeding young silkworms, it being claimed that worms thus fed produce a superior kind of silk to those fed upon mulberry leaves alone. The plant is exceedingly common and by no means new, but I believe with you that there is a future for it in this country as a hedge plant or ornamental tree, if nothing else." (*E. H. Wilson.*)

Distribution.—The provinces of Shantung, Kiangsu, Chekiang, Kiangsi, Hupeh, and Kwangtung; and in the islands of the Korean Archipelago.

34494 to 34496.

From Singapore, Straits Settlements. Presented by Mr. Wilson Popenoe, Altadena, Cal. Received November 8, 1912.

Quoted notes by Mr. Popenoe, except as indicated:

34494. NEPHELIUM LAPPACEUM L. **Rambutan.**

"The rambutan is one of the commonest and at the same time most palatable fruits of the Malay Peninsula. Trees are to be seen in almost every garden in both Singapore and Penang, and in its season the fruit is hawked everywhere in the streets. The tree grows to a height of about 40 feet, and when in fruit is a handsome sight, the terminal clusters of bright crimson fruits being produced on every branch. The compound leaves are made up of oblong-ovate leaflets, about 4 inches in length and 1½ inches in width. In habit of growth the tree appears to be normally rather round topped and spreading, but as it is frequently planted among numerous other trees it is forced to grow tall and slender, branching only at a considerable height above the ground.

"According to Mr. J. D'Almeida Pereira, of Singapore, there are eight or ten varieties of the rambutan, the difference being in form and coloring. The natives, however, do not distinguish between any of these varieties. He considers the '*Atjense*' variety, which he has propagated by grafting, to be the finest, as it is the sweetest in flavor and the pulp does not adhere to the seed as closely as in most varieties. From his description of this form it would appear that it is nothing less than the species *Nephelium mutabile*, which, although of distinctive appearance from the rambutan, seems to be considered by all the natives as merely a variety of the latter. Among the varieties of the true rambutan the differences do not seem to be very well marked or of great importance. In appearance a cluster of rambutans, when highly colored, is exceptionally attractive. The best forms attain, when fully ripe, a rich crimson color, while the poorer ones are greenish or yellowish, sometimes a combination of these two and lacking any tinge of crimson. The individual fruits are slightly smaller than a hen's egg, but more elongated in form; they are covered with soft spines about a half inch in length, and are borne in clusters of varying size, but rarely containing more than 10 or 12 fruits. The pericarp

34494 to 34496—Continued.

is not thick or tough, and to eat the fruit the basal end is usually torn off, exposing the aril, which, with a slight pressure on the apical end of the fruit, slides into the mouth. The flavor is mildly subacid and somewhat vinous, pleasant, but rather lacking in character. An oblong, flattened seed is inclosed in the aril.

"General form oblong elliptical; weight averaging about 1 ounce; length 1⅜ inches, breadth 1¼; base rounded or slightly tapering; apex rounded or slightly tapering; stem slender, short; peduncle 8 to 10 inches long, woody, medium stout, bearing three to ten fruits; surface covered with slender, soft, fleshy spines under 1 inch in length; color rich crimson or crimson maroon, yellowish when not fully ripe; pericarp one-sixteenth to one-eighth of an inch thick, firm, greenish; aril whitish, transparent, about one-fourth inch thick, meaty, very juicy; seeds, one, large, oblong, compressed, pointed at the apex, the aril adhering to it closely; flavor subacid, vinous, pleasant."

34495. BACCAUREA MOTLEYANA Muell. Arg. **Rambe.**

"A tree of rather large size, native of the Malay region, and commonly planted in gardens in Singapore and Penang. It forms a dense umbrageous head of foliage and is of very symmetrical growth. The leaves are oval, entire, dark green in color, about 6 inches in length and 4 inches in breadth. The fruit, which is produced in great profusion in long pendent clusters on the old wood, may be described as follows: General oval form, sometimes slightly elliptical; average weight, three-fourths of an ounce; length, 1 to 1¼ inches; breadth, three-fourths to seven-eighths of an inch; base rounded or tapering almost imperceptibly; cavity none; apex rounded or tapering slightly, basin none; calyx persistent in the form of three linear-lanceolate brownish sepals, which frequently drop off when the fruit is handled; stem medium, stout, short; panicle sometimes 12 inches long, bearing from five to ten fruits; surface smooth, covered with a thin grayish tomentum; color light straw, with occasional small patches of russet; skin one-eighth to one-fourth inch in thickness, of tough, leathery texture; pulp whitish, translucent, soft, melting, very juicy; seeds normally three, but one or two of them frequently abortive or imperfectly developed, oval to elliptical, somewhat compressed and grooved, and of rather large size; flavor subacid, resembling that of a fully ripe gooseberry, pleasant; season, August to September. It is one of the commonest fruits in the Penang markets. It does not seem to be esteemed by Europeans, however, and can not be considered to possess more than ordinary merit."

34496. LANSIUM DOMESTICUM Jack. **Duku.**

"There are two distinct forms of this species, the langsat, or lanzon, as it is known in the Philippines, and the duku, or doekoe. The duku, the larger and better of the two, is one of the finest of the Malayan fruits. Although not equal to the mangosteen or so popular among the natives as the rambutan, it is a common tree in gardens and along the roadsides, and the fruit is common in the markets. The duku does not appear to occur in the Philippines, although the langsat is said to be common in the southern islands. In the Federated Malay States, however, it is much more popular than the langsat. The normal form of the duku is spherical; although fairly uniform in shape, there is much difference in the size of the fruits, the smallest being not over an inch in length, while the largest are over 2 inches. The skin is slightly furrowed longitudinally, is a dull brownish yellow in color, and covered with grayish tomentum. The skin is quite thick and, although tough and leathery, is readily peeled off, exposing the whitish, translucent flesh, divided into five segments resembling the cells

34494 to 34496—Continued.

of an orange, but more easily separated. A small amount of intercellular tissue is usually present, and this must be carefully removed before the fruit is eaten, as it has an intense and disagreeable terebinthine flavor. Three or four of the cells will be found to contain no seeds, or at least only rudimentary ones, and can be eaten entire; the one or two cells which contain perfect seeds are usually larger than the rest, and the pulp adheres to the seed quite tenaciously. They are more difficult to handle. The flavor of the pulp resembles that of no temperate fruit; it is subacid or sometimes rather acid, aromatic, and very pleasant unless one happens to obtain a specimen not fully ripe, in which case there is a strong taste of turpentine; like most other Malayan fruits, however, this one has not become popular with Europeans. The duku is produced in small terminal clusters containing from two to five fruits. As the individual fruits do not ripen at the same time, they are picked separately, with the result that one rarely sees clusters of the fruit in the market.

"General form spherical, sometimes slightly oblate; weight averaging about 2 ounces; length 1 to 1⅞ inches, thickness 1¼ to 2¼ inches; base slightly furrowed near the stem, rounded or sometimes tapering almost imperceptibly, cavity none; apex slightly flattened, stigmatic point a prominent, raised, brownish dot; calyx persistent, but usually remaining with the stem when the fruit is pulled from the tree; sepals five, small, dry, brownish; peduncle very stout and woody, covered with short, woolly hairs, bearing two to five sessile fruits; surface pubescent, sometimes slightly warty, covered with indistinct longitudinal furrowings; color dull, unattractive, brownish yellow, slightly darker near base; skin three-sixteenths of an inch thick, tough, leathery, separating readily from the flesh; cells five—two, three, or four imperfectly developed and containing only abortive seeds; seed coats membranous; flesh whitish, translucent, melting, very juicy; seeds one or two, perfectly developed, of variable size, oval, flattened, and somewhat irregular in outline; flavor subacid, much superior to that of the langsat. The langsat varies from the above description in being oval, produced in large clusters, and having a much thinner skin, by which characters it can be immediately distinguished. It is fully described as follows: General form oval to roundish oval; weight averaging not more than 1 ounce; length 1 to 1½ inches, thickness ¾ to 1¼ inches; base rounded, cavity none; apex rounded, crowned by a hard, short, brownish point; calyx persistent, sepals five, small, brownish; peduncle medium stout, woody, covered with short hairs, and bearing 5 to 20 sessile fruits; surface slightly wrinkled longitudinally; tomentose; color dull brownish yellow, slightly darker near the base; skin rather tough, thin, and leathery, separating readily from the flesh; cells five—two, three, or four imperfectly developed and containing only abortive seeds; flesh whitish, translucent, melting, juicy; seeds, one or two perfectly developed of variable size, oval, flattened, sometimes rather irregular in outline, seed coats membranous; flavor subacid, not very agreeable, as it is somewhat terebinthine.

"During its season the langsat is quite common in the Manila markets and sells at a good price. A cluster of the fruits looks not unlike a cluster of loquats, except in the less attractive color.

"It is a medium-sized, rather slender tree, native of the Malay Archipelago. The compound leaves are made up of six or eight oblong-lanceolate glabrous leaflets about 4 inches in length and 1½ inches in breadth, the petiole very short. Except in the difference in the size of the fruit clusters, the two forms are, as far as could be ascertained, practically the same in characters of growth and foliage."

34494 to 34496—Continued.

"Dr. B. T. Galloway, during his brief visit in Java in 1910, was much impressed with the possibilities of this fruit. These impressions agreed with my own made in 1896 and led us to request Mr. Popenoe to make a special examination of its culture in the East Indies." (*Fairchild.*)

For illustrations showing the fruits of the duku (doekoe) and the langsat, see Plates III and IV. See S. P. I. No. 34421 for the introduction of the langsat.

34497 to 34514.

From Seharunpur, India. Presented by Mr. Wilson Popenoe, Altadena, Cal. Received November 4, 1912.

Quoted notes by Mr. Popenoe:

34497. AMARANTHUS GANGETICUS L. **Amaranth.**

"*Marsa sag.* Cultivated for the sake of its leaves, which are used like spinach."

34498. CANAVALI GLADIATUM (Jacq.) DC. **Sword bean.**

"*Bara sem.* The young pods of this plant are eaten and are acceptable, as they are obtainable at a season when other vegetables are scarce."

34499. CUCUMIS SATIVUS L. **Cucumber.**

"*Khira.* Long green variety. One of the best of the local cucumbers."

34500. CUCUMIS SATIVUS L. **Cucumber.**

"*Khira.* Small round green variety."

34502. LAGENARIA VULGARIS Ser. **Gourd.**

"*Alkada* or *lauka.* Mixed varieties. The gourd is cultivated for its fruits, which are used as a vegetable when about half grown."

34503. LUFFA ACUTANGULA (L.) Roxburgh. **Loofah gourd.**

"*Kali torai.* Rainy-season variety."

34504. LUFFA ACUTANGULA (L.) Roxburgh. **Loofah gourd.**

"*Kali torai.* Hot-season variety. Similar in growth to S. P. I. No. 34505, but with ribbed fruits."

34505. LUFFA CYLINDRICA (L.) Roemer. **Loofah gourd.**
(*L. aegyptiaca* Miller.)

"*Ghiya torai.* Common long variety."

34506. LUFFA CYLINDRICA (L.) Roemer. **Loofah gourd.**
(*L. aegyptiaca* Miller.)

"*Ghiya torai.* White seeded. An annual climber with smooth cylindrical fruit a foot long or more, but edible only when about half grown."

34507. MOMORDICA CHARANTIA L. **Carilla.**

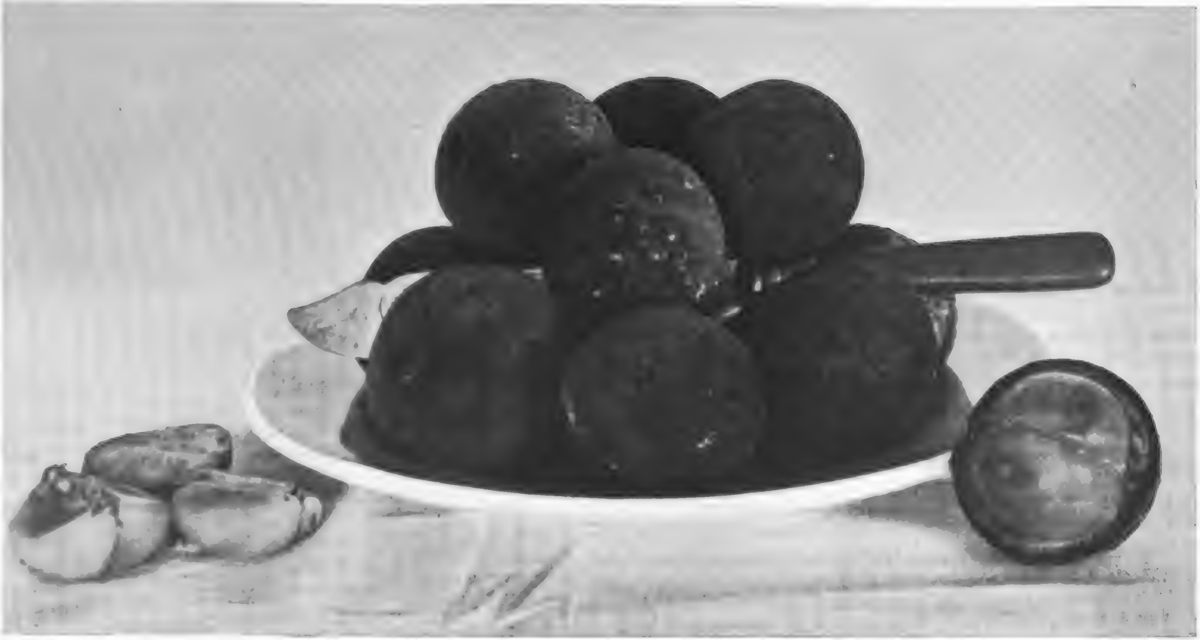
"*Karela.* Common large. A slender climbing or trailing annual, with oval, warty fruits 3 or 4 inches in length, green when young, orange red when ripe. They have a bitter taste and are used in curries."

34508. STIZOLOBIUM sp.

"*Purple sem.* An annual of twining habit. The immature seed pods are borne in clusters and eaten when about 6 inches in length. When cooked they are said to resemble, and to be almost equal to, the French bean."

34509. STIZOLOBIUM CINEREUM Piper and Tracy.

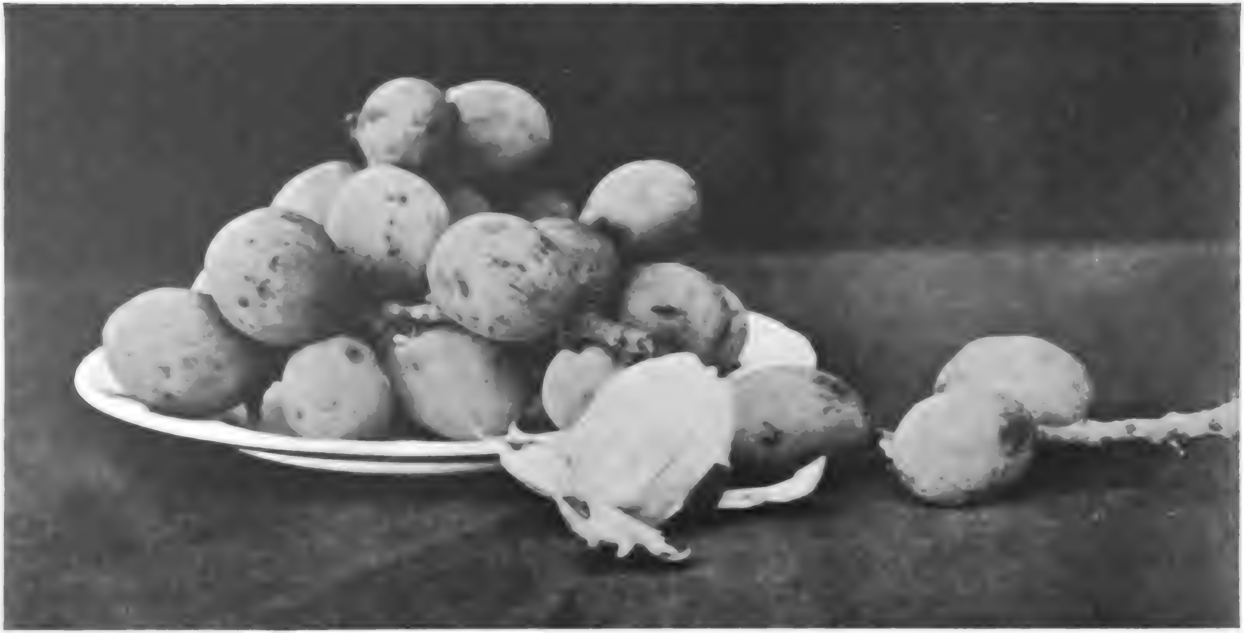
"*Tohar sem.* Very similar to S. P. I. No. 34508 and used in the same way."



THE DUKU, OR DOEKOE (LANSIUM DOMESTICUM, JACK), OF THE DUTCH EAST INDIES.

There are distinct forms of this species, the duku and the langsat. The duku, the larger and better of the two, is one of the finest Malayan fruits. The fruit is spherical, from 1 to 2 inches in diameter, dull brownish yellow in color, with a grayish tomentum. The skin is quite thick, but easily removed, showing the five segments of whitish, translucent flesh, which is subacid, aromatic, and very pleasant. It is one of the best of the Javanese fruits, according to both Dr. B. T. Galloway and Mr. David Fairchild. The small terminal clusters contain from two to five fruits. Copied from a photograph by Mr. Wilson Popenoe, Singapore, Straits Settlements, 1912.

Google



THE LANGSAT (LANSIUM DOMESTICUM, JACK). (S. P. I. No. 34496.)

This is the smaller of the two forms of this species, differing from the duku, or doekoe, in its thinner skin, larger clusters, and its oval fruit, the growth and foliage characters being practically the same. From a photograph by Mr. Wilson Popenoe, Penang, Straits Settlements, 1912.

Google

34497 to 34514—Continued.

34510. PORTULACA OLERACEA L. **Purslane.**

"*Kulfa sag.* A dwarf creeping annual herb with fleshy leaves, which are sometimes used in salads, but more frequently boiled and served like spinach."

34511. SOLANUM MELONGENA L. **Eggplant.**

"*Banigan.* Long rainy-season variety. The eggplant seems to be especially adapted to the plains of central India, as it thrives there to perfection. The varieties cultivated, of which this is one of the best, appear to be of exceptionally good quality, although the size of the fruit is not large."

34512. TRICHOSANTHES ANGUINA L. **Snake gourd.**

"*Chachinda.* White variety. An annual of climbing habit. The long, cucumberlike fruits are picked when young, cut into strips, and served like French beans."

34513. TRICHOSANTHES ANGUINA L. **Snake gourd.**

"*Chachinda.* Black variety. Identical with S. P. I. No. 34512 except in the color of the fruits, which are dark instead of light green."

34514. VIGNA SESQUIPEDALIS (L.) Fruwirth. **Asparagus bean.**
(*Dolichos sesquipedalis* L.)

"Cuba or asparagus bean. An annual of climbing habit grown for its long pod, which when immature is served like the French bean. The pods when mature are 9 to 12 inches long."

34515. AMYGDALUS DAVIDIANA (Carr.) B. S. and Z. **Peach.**
(*Prunus davidiana* Franch.)

From Tientsin, China. Procured through Mr. Samuel S. Knabenshue, American consul general. Received at the Plant Introduction Field Station, Chico, Cal., November 9, 1912.

See S. P. I. Nos. 22009 and 27310 for descriptions.

34516. AMYGDALUS DAVIDIANA (Carr.) B. S. and Z. **Peach.**
(*Prunus davidiana* Franch.)

From Tientsin, China. Presented by Dr. Yamei Kin. Received at the Plant Introduction Field Station, Chico, Cal., November 9, 1912.

"*Shan t'ao*, the mountain wild peach. These seeds came from the Governmental Experimental Farm in Pao Ting Fu and vicinity. They must be planted in the autumn and allowed to be split by the frost so that they will germinate readily in the spring." (*Kin.*)

34517. CASTANEA sp. **Chestnut.**

From Tientsin, China. Procured through Mr. Samuel S. Knabenshue, American consul general. Received at the Plant Introduction Field Station, Chico, Cal., November 9, 1912.

"The Chinese wild species of chestnut (*Castanea mollissima* Blume) has shown indications at least of being more or less resistant to chestnut blight, and these may prove to be so, as they come from the same general region as those inoculated and tested." (*Fairchild.*)

34519. AMYGDALUS PERSICA L. **Peach.**

(*Prunus persica* Stokes.)

From Guadeloupe, French West Indies. Presented by Mrs. St. George Lough, at the request of Mrs. F. T. F. Du Mont. Received November 11, 1912.

See S. P. I. 34131 for description.

Scions.

34520. COLOCASIA sp.

From Yencheng, Kiangsu, China. Presented by Rev. Hugh W. White. Received November 11, 1912.

"A giant variety, here used as food. It is quite a good substitute for potatoes when prepared in an appetizing way. I presume the taro of the Pacific Ocean is similar, but have never seen it. Other parts of China raise it, but nowhere does it grow to such size as here." (*White.*)

"The corm received weighed about 1 pound, and a part of it when baked was white, of good flavor, and fine, mealy texture." (*R. A. Young.*)

34521. MALUS sp. **Apple.**

From Siberia. Presented by Mr. Svend Lange, Barnaul. Received November 6, 1912.

"Concerning these seeds, the farmer Sokoloff told me that most of the apple seeds after they were sown unless the trees were grafted rarely gave the same size fruits." (*Lange.*)

34522. UVARIA GRANDIFLORA (Lech.) Roxburgh.

(*U. purpurea* Blume.)

From the Philippine Islands. Presented by Mr. O. W. Barrett, Bureau of Agriculture, Manila. Received November 11, 1912.

"*Banauac.*—A shrubby climber related to the cherimoya, with bright-red, kidney-shaped fruits, about twice the size of a grape, in bunches of some 15 to 20, having edible subacid flesh containing numerous seeds. The plant is perhaps of little value for its fruit, but the fruiting plant is a good ornamental subject." (*Barrett.*)

Distribution.—The Province of Pegu, in Burma, and eastward through the Malay Archipelago to the Philippines.

34523 to 34601.

From Jamaica Plain, Mass. Collection of Chinese plants from the Arnold Arboretum. Received November 11, 1912.

"Part of the collections made for the Arboretum by Mr. E. H. Wilson and coming for the most part from western China. Mr. Wilson spent nearly eight years exploring the plant resources of this rich collecting field." (*Fairchild.*)

Plants of the following; quoted notes by Mr. Wilson, except as otherwise stated:

34523. TETRACENTRON SINENSE Oliver.

"A tree 20 to 50 feet high, first discovered by Dr. Augustine Henry in Hupeh, central China, and later introduced into cultivation by Mr. E. H. Wilson. It belongs to a recently described genus of Magnoliaceæ, has serrate alternate ovate-elliptic leaves and minute flowers, on drooping spikes 4 to 6 inches in length, of singular botanical interest, but of little value from a horticultural point of view." (*Veitch, Hortus Veitchii.*)

34523 to 34601—Continued.

34524. STYLIDIUM CHINENSE Loureiro.
(*Marlea begonifolia* Roxb.)

"(Wilson No. 596.) A bush or small tree. Flowers white; thickets, Fang Hsien, 1,100 meters altitude, western Hupeh."

34525. ILEX FARGESII Franch. **Holly.**

"(Wilson No. 231.) From Hsingshan Hsien, in woods, at an altitude of 1,200 to 2,100 meters, May and September, 1907. An evergreen shrub from Hupeh and Szechwan, western China, growing from 4 to 10 feet high, and very unlike a holly. The leaves are narrowly lanceolate, spineless, leathery, deep green above, and pale green beneath."

34526. VIBURNUM FOETIDUM RECTANGULATUM (Graebner) Rehder.

"From western China."

34527. ILEX PERNYI Franch. **Holly.**

From Hupeh and Szechwan, western China.

"A dense-growing species of holly with small spiny leaves and red berries, probably allied to *Ilex cornuta*, discovered by Père Paul Perny during his travels in China between 1850 and 1860. It is of very dwarf compact habit and has proved perfectly hardy at Coombe Wood." (*Veitch, Hortus Veitchii.*)

34528. ALBIZZIA JULIBRISSIN Duraz.

"(Wilson No. 792.) Tree 13 meters tall; woods, 1,300 meters altitude. Changyang Hsien; very rare."

34529. ACTINIDIA sp.

"(Wilson No. 512.) Climber, 4 to 6 meters; flowers buff yellow; fruit elongate, spotted; thickets, 1,300 meters altitude, western Hupeh; common."

34530. REEVESIA sp.

"(Wilson No. 4395.) A tree 20 meters tall, 1.5 meters girth, one only, side of stream, 2,300 meters altitude; Panlanshan, west of Kuan Hsien. Colloquially, the '*Sohlanshu.*'"

34531. COTONEASTER SALICIFOLIA FLOCCOSA Rehder and Wilson.

"From near Wenchwan Hsien, western Szechwan, at an altitude of 2,300 to 3,000 meters. A shrub from 2 to 4 meters in height, with graceful curving branches, floccosely tomentose leaves, and bright-red fruits."

34532. PALIURUS ORIENTALIS Hemsley.

"(Wilson No. 105.) A bush 3 to 5 meters tall; roadside thickets, vicinity of Ichang, 300 to 600 meters altitude."

34533. DEUTZIA LONGIFOLIA Franch.

"(Wilson No. 4300.) From Sungpan, Szechwan, western China, in thickets at an altitude of 2,700 meters, October, 1910. This species is readily distinguished from related species by the narrower, rather thicker leaves, rugose above and with strongly elevated veins on the whitish underside, by the purplish flowers in many-colored paniculiform cymes usually loose and borne on elongated branchlets, but sometimes rather dense and on short branchlets, and by the usually four styles and larger capsules measuring about 6 millimeters in diameter."

34534. CAMPTOTHECA ACUMINATA Decaisne

34535. MENISPERMUM sp.

"(Purdom No. 600.)"

34523 to 34601—Continued.

34536. Deutzia glomeruliflora Franch.

"(Wilson No. 4383.) From Chetoshan, southwest of Tachienlu, Szechwan; altitude, 3,500 meters; October, 1910."

34537. Ampelopsis megalophylla Diels and Gilg.

"(Wilson No. 143.) From north and south Ichang, western Hupeh, in woods, at an altitude of 1,200 to 1,500 meters; June and September, 1907. One of the most interesting of the recently discovered species from western China, having canes 20 to 30 feet long and large divided leaves often more than 3 feet in diameter. Survived the winter of 1911–12 without injury at the Arnold Arboretum."

34538. Pinus sinensis Lambert. **Pine.**

"(Wilson No. 1370.)"

34539. Prunus dehiscens Koehne.

"(Wilson No. 4029.) From western Szechwan. A shrub from 2 to 4 meters in height, with a green fruit having thin flesh easily soluble, which, according to Wilson, is dehiscent. Very similar to *P. mongolica* Maximowicz."

34540. Juniperus formosana Hayata. **Juniper.**

"(Wilson No. 696.) (cf. *J. taxifolius.*) Thin tree 8 to 12 meters tall; fruit orange; moist thickets, 600 to 1,300 meters altitude; south of Ichang."

34541. Thuja orientalis L. **Arbor vitæ.**

"(Wilson No. 1272.) A tree 8 meters tall, one tree by the wayside; altitude, 1,300 meters; Mupin, western Szechwan; a distinct arbor vitæ."

34542. Neillia affinis Hemsley.

"(Wilson No. 916 A.) Shrub, 1 to 1.5 meters; flowers, pink; thickets, 200 to 2,500 meters altitude; Washan, western Szechwan."

34543. Stranvaesia davidiana Decaisne.

"From western Szechwan."

34544. Acer catalpifolium Rehder. **Maple.**

"(Wilson No. 4208.) From near Yachoufu, western Szechwan, along streams, at an altitude of 450 to 600 meters, October, 1910. A tree reaching 10 to 23 meters in height, with a trunk sometimes 1.2 meters in diameter, having undivided leaves which turn yellow in autumn, making the tree very handsome."

34545. Cupressus funebris Endlicher. **Cypress.**

"(Wilson No. 798.) Tree, 10 to 30 meters; abundant in western Hupeh up to 1,100 meters; seeds from altitudinal limits. One of the most useful and beautiful of Chinese conifers. The wood, known as *Pah mu*, is largely employed in boat building and general carpentry."

34546. Ilex macrocarpa Oliver. **Holly.**

"(Wilson No. 151.) From western Hupeh, 1907."

34547. Cephalotaxus fortunei Hooker.

"(Wilson No. 1386.) Tree, 8 meters; fruit, purple; roadsides, etc., 1,500 meters altitude; near Washan, western Szechwan."

34548. Pinus massoniana Lambert. **Pine.**

"(Wilson No. 1468.) Kiating and vicinity, west to Mupin, western Szechwan; altitude up to 1,000 meters; May and November, 1908."

34549. Pinus sinensis Lambert. **Pine.**

"(Wilson No. 1472.) From Mupin, western Szechwan; altitude, 1,500 to 2,000 meters; November, 1908."

34523 to 34601—Continued.

34550. BERBERIS AGGREGATA Schneider. **Barberry.**

"(Wilson No. 4286.) A bush 1.5 meters tall, racemes erect, fruit red; thickets, 2,600 to 3,000 meters altitude; Mupin, western Szechwan."

34551. ZANTHOXYLUM sp.

"(Purdom No. 185.)"

34552. BERBERIS BERGMANNIAE ACANTHOPHYLLA Schneider. **Barberry.**

"(Wilson No. 4149.) A bush 1 to 2 meters; thickets, 1,000 to 1,500 meters altitude; west of and near Wenchwan Hsien, western Szechwan. An evergreen species."

34553. BERBERIS LEVIS Franch. **Barberry.**

"(Wilson No. 4287.) Bush, 1 to 1.5 meters tall; fruit small, globose, reddish; thickets, 2,000 to 2,500 meters altitude; Panlanshan, west of Kuan Hsien, western Szechwan."

34554. BERBERIS LIECHTENSTEINII Schneider. **Barberry.**

"(Wilson No. 4154.) Bush, 1 to 2 meters; spines very long, fruit dark red. Min Valley, near Maochou, western Szechwan, 1,600 to 2,300 meters altitude."

34555. JUGLANS CATHAYENSIS Dode. **Chinese butternut.**

"(Wilson No. 371.) Bush, more rarely a tree, 2 to 15 meters tall; woodlands, 600 to 1,800 meters altitude; northwestern Hupeh; common. The Chinese butternut."

34556. PHELLODENDRON SACHALINENSE Sargent.

"(Wilson No. 1286.) A tree, 6 to 10 meters; moist woodlands, 1,200 meters altitude; Mupin, western Szechwan."

34557. EHRETIA sp.

"(Wilson No. 74.) Tree, 6 to 15 meters tall, flowers white; woodlands north and south of Ichang; 300 to 1,000 meters altitude."

34558. PRUNUS CONRADINAE Koehne.

"(Wilson No. 5.) From Changyang Hsien, western Hupeh; in woodlands, at an altitude of 1,000 to 1,200 meters; June, 1907. A tree 3 to 12 meters in height, with a trunk 20 to 50 centimeters in diameter."

34559. MORUS sp. **Mulberry.**

"(Wilson No. 8 A.) Bush, 1 to 4 meters tall; fruit black; cliffs north and south of Ichang; 600 to 1,300 meters altitude."

34560. PRUNUS CONRADINAE Koehne.

"(Wilson No. 3 B.) From woods north and south of Ichang, western Hupeh; altitude 600 to 1,600 meters; July, 1907." See S. P. I. No. 34558 for description.

34561. CELTIS sp.

"(Wilson No. 343.) Tree, 10 meters tall, 1 meter girth; open country Hsingshan Hsien; 800 meters altitude."

34562. CELTIS sp.

"(Wilson No. 444.) Tree, 6 to 12 meters; fruit orange; woods and thickets, Patung Hsien; 1,200 to 1,300 meters altitude."

34563. PRUNUS CONRADINAE Koehne.

"(Wilson No. 7.)" See S. P. I. No. 34558 for description.

34523 to 34601—Continued.

34564. EVODIA VELUTINA Rehder and Wilson.

"(Wilson No. 994.) Tree, 13 meters tall; woods, 1,600 meters altitude; west of and near Wenchwan Hsien, western Szechwan."

34565. JUGLANS sp. **Walnut.**

"(Wilson No. 390.) (Cf. *J. regia.*) Tree, 10 to 15 meters tall; cultivated; Fang Hsien; 1,500 to 2,000 meters altitude. A good-flavored walnut."

34566. CORNUS sp.

"(Wilson No. 1017.) Tree, 10 to 16 meters altitude; fruit blue-black; woodlands, 1,200 to 1,500 meters altitude; west of and near Wenchwan Hsien, western Szechwan."

34567. PYRUS sp.

"(Wilson No. 395.) Tree, 6 meters tall; flowers white; fruit small, globose, flattened; woodlands and open country, 600 to 1,300 meters altitude· north and south of Ichang; common."

34568. EUPTELEA PLEIOSPERMA Hook. and Thoms.
(*E. davidiana* Baill.)

"(Wilson No. 588.) Hsingshan Hsing."

"An extremely interesting tree belonging to the Trochodendraceæ, widely distributed in central and western China, where specimens have been obtained by many travelers, the first by Peré David, after whom it is named. The plant forms a shrub or small tree 10 to 20 feet in height with neat nearly orbicular leaves terminated by a thick mucrolike apex, and colors well in autumn; the wood resembles that of the hazel. The species is very variable, there being a great many different forms." (*Veitch, Hortus Veitchii.*)

34569. CELTIS sp.

"(Wilson No. 593.) Tree, 6 meters tall, fruit black; woods, Fang Hsien; 1,300 meters altitude."

34570. LONICERA SIMILIS DELAVAYI (Franch.) Rehder.

"From western China. It seems more natural to treat *L. delavayi* only as a glabrous or glabrescent variety of *L. similis.*"

34571. PRUNUS CYCLAMINA Koehne.

"From Changyang Hsien, western Hupeh, in woodlands, at an altitude of 100 to 1,300 meters, April and June, 1907. A tree from 5 to 8 meters in height bearing red fruit, the calyxes resembling the corollas of the cyclamen in shape."

34573. PHELLODENDRON SACHALINENSE Sargent.

"(Wilson No. 4217.) Small tree, 6 to 10 meters tall; woodlands, 1,600 to 2,000 meters altitude; Mupin, western Szechwan."

34574. PRUNUS TENUIFLORA Koehne.

"(Wilson No. 13.) From Hsingshan Hsien, western Hupeh, in woods, at an altitude of 1,300 to 1,600 meters, May and June, 1907. This species is very similar to *P. sargentii* Rehder, but differs in the smaller and apparently paler and thinner leaves, the frequent presence of pubescence on the petiole, in the peduncle (4 to 20 millimeters long), the occasional pubescence of the pedicels, the very slender cupule (6.5 to 10 millimeters long, in *P. sargentii* 5.5 to 7 millimeters long) and the smaller and broader stone (6 to 8 millimeters long, in *P. sargentii* 9 to 10 millimeters long); also very similar to *P. conradinae.*"

34523 to 34601—Continued.

34575. Fagara stenophylla (Hemsley) Engler.
(*Zanthoxylum stenophyllum* Hemsley.)

"(Wilson No. 1245.) Bush, 1 to 1.5 meters; thickets, 2,000 meters altitude; southeast of Tachienlu, western Szechwan."

34576. Prunus dielsiana laxa Koehne.

"(Wilson No. 37.) From Patung Hsien, western Hupeh, in woods, at an altitude of 1,300 to 1,600 meters, May and June, 1907."

34577. Buddleia nivea yunnanensis (Dop) Rehder and Wilson.

"(Wilson No. 4403.) Bush, 2 to 2.5 meters; arid regions Tung Valley, near Tachienlu; 1,300 meters altitude; western Szechwan."

34578. Psedera thomsoni (Lawson) Stuntz.
(*Vitis thomsoni* Lawson, in Hooker, Flora British India, vol. 1, p. 657, 1875.)
(*Parthenocissus thomsoni* Planchon, in De Candolle, Monographia Phanerogamarum, vol. 5, p. 453, 1887.)

Plants of this vitaceous climber from China were received under the name *Parthenocissus thomsoni*, published in 1887 by Planchon, based on *Vitis thomsoni* Lawson. The earliest name applied to this genus, however, is Psedera of Necker (Elementa, vol. 1, p. 158, 1790). It is therefore necessary to adopt here the name *Psedera thomsoni*.

"(Wilson No. 4184.) Three to five meters tall; cliffs, 2,000 to 2,300 meters altitude; west of and near Wenchwan Hsien, western Szechwan, October, 1910. Resembles *Psedera quinquefolia;* five rather coriaceous leaflets and stoutish branching tendrils."

34579. Clematis chinensis Retz. **Clematis.**

"(Wilson No. 1357.) Climber, 2 to 3 meters; flowers white; produced in September; fragrant; low altitudes, western Szechwan; common."

34580. Vitis sp.

34581. Vitis flexuosa Thunberg.

"From western Hupeh, China."

34582. Prunus mume Siebold and Zuccarini.

"(Wilson No. 4146.) From near Wenchwan Hsien, western Szechwan, in thickets, at an altitude of 1,600 to 2,000 meters, October, 1910."

34583. Liquidambar formosana Hance.

"(Wilson No. 513.) Survived the unusually hard winter of 1911-12 at the Arnold Arboretum without injury, while the native species suffered in that locality, except in favorable situations. The feng tree of the Chinese, who utilize the lumber for making tea chests. A deciduous tree with handsome deep-green trifid leaves."

34584. Poliothyrsis sinensis Oliver.

"(Wilson No. 500a.) From west of Wenchwan Hsien, western Szechwan, in woods, at an altitude of 1,000 to 1,300 meters, October, 1908. A tree 10 meters tall, 65 centimeters in girth, with nearly white flowers; common, rather slender, loosely branched; with gray bark deeply furrowed in adult, smooth in young trees. The leaves vary considerably in size and shape and also in degree of serration and pubescence. A colloquial name for this tree around Ichang is '*Yukuei chou*.'"

34523 to 34601—Continued.

34586. BUDDLEIA NIVEA YUNNANENSIS (Dop) Rehder and Wilson.

"(Wilson No. 4389.) Bush, 2 to 5 meters, arid regions west of and near Wenchwan Hsien, western Szechwan."

34587. PHELLODENDRON SACHALINENSE Sargent.

"(Wilson No. 4217.)" See S. P. I. No. 34573 for description.

34588. FAGARA STENOPHYLLA (Hemsley) Engler.
(*Zanthoxylum stenophyllum* Hemsley.)

"(Wilson No. 4213.) Bush, 1 to 2.5 meters; thickets, 1,300 to 1,600 meters altitude; Mupin, western Szechwan."

34589. CYDONIA sp.

"(Wilson No. 4120.) Bush, 4 to 6 meters, leaves felted below; fruit large ovoid, golden on one side, reddish on the other; roadside thickets, southwest of Tachienlu; 1,600 to 2,000 meters altitude."

34590. CORYLUS sp.

"(Wilson No. 4283.) Bush, 5 to 6 meters tall; fruit large, spiny; woods, 2,000 to 2,300 meters altitude; common; western Szechwan."

34591. CORYLOPSIS WILLMOTTIAE Rehder and Wilson.

"(Wilson No. 4406.) Bush, 3 to 4 meters; thickets, 2,300 to 2,600 meters altitude; near Tachienlu, western Szechwan."

34592. AMPELOPSIS DELAVAYANA Planch.

"(Wilson No. 124.) From Changlo Hsien, western Hupeh, in thickets, at an altitude of 600 to 900 meters, June and September, 1907. A form with simple leaves like the variety *amurensis* and only occasionally divided into three leaflets."

34593. ALNUS sp.

"(Wilson No. 1377.) Tree, 6 to 20 meters; side of river and moist woodlands, 1,500 to 2,000 meters altitude; southeast of Tachienlu, western Szechwan."

34594. LIGUSTRUM sp.

"(Wilson No. 754.) Bush, 3 meters; flowers paniculate; side of streams, 1,200 meters altitude; South Wuchan, eastern Szechwan."

34595. RHAMNUS DUMETORUM CRENOSERRATUS Rehder and Wilson.

"(Wilson No. 4096.) Bush, 1 to 1.5 meters; fruit black; thickets, 1,600 to 2,300 meters altitude; near Tachienlu, western Szechwan."

34596. ALNUS sp.

"(Wilson No. 1377a.) Tree, 10 to 25 meters; sides of streams, 600 to 1,500 meters altitude; abundant; western Szechwan."

34597. STYLIDIUM CHINENSE Loureiro.
(*Marlea begonifolia* Roxb.)

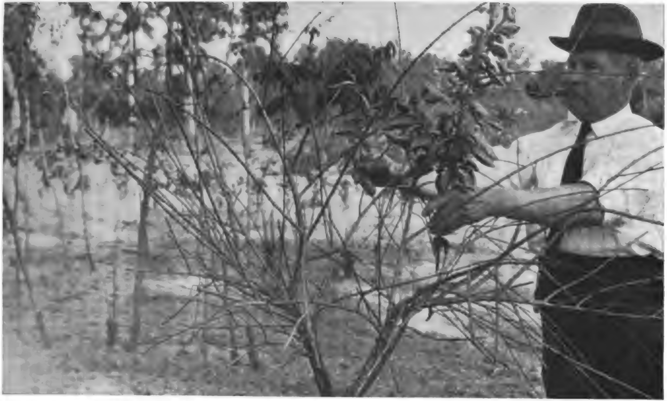
"(Wilson No. 596.)" See S. P. I. No. 34524 for description.

34598. EUCOMMIA ULMOIDES Oliver. **Tu chung.**

"(Wilson No. 383.) Tree, 6 to 16 meters tall; sparingly cultivated; 500 to 1,500 meters altitude; western Hupeh; *Tu chung*."

34599. MAGNOLIA WILSONII (Finet and Gagnepain) Rehder. **Magnolia.**

"(Wilson No. 1374.) Bush or thin tree, 4 to 8 meters tall; flowers white; thickets and woodlands, 2,000 to 2,600 meters altitude; southeast of Tachienlu, western Szechwan."



Prunus Mira, the New Species of Peach Recently Discovered Near Tachienlu, Szechwan, China, by Mr. E. H. Wilson, of the Arnold Arboretum. (S. P. I. No. 34601.)

It is remarkably distinct from *Amygdalus persica*, having a smooth stone and characteristic leaf scars. In this photograph, taken at the Brooksville (Fla.) Field Station on March 31, 1914, this tree, which is 2 years old, will be seen to be entirely dormant, while the branches of the two other peaches (*Amygdalus persica*), the one in Mr. Fulton's right hand, a seedling, and the other a Guadeloupe Island peach which retained its leaves all winter, were in full leaf. This habit of starting late in the spring, which it has shown at the Arnold Arboretum as well as in Florida, will probably be of great interest and importance to breeders of peaches, inasmuch as it may lead to the origination of peach varieties which bloom later in the season. The fruit of this new wild species is about an inch in diameter and edible. Photographed by Mr. David Fairchild, Brooksville, Fla., March 31, 1914.

34523 to 34601—Continued.

34600. DEUTZIA LONGIFOLIA Franch.

"(Wilson No. 4326.) From Panlanshan, west of Kuan Hsien, in thickets, at an altitude of 2,400 to 2,700 meters, October, 1910." See S. P. I. No. 34533 for description.

34601. PRUNUS MIRA Koehne. **Peach.**

"(Wilson No. 4205.) From 2 miles north of Tachienlu; very rare, at an altitude of 2,800 meters, October, 1910. This is the first peach known with a smooth stone. A tree up to 10 meters in height, with trunk 40 centimeters in diameter; fruit subglobose, 28 millimeters long, 25 millimeters in diameter, densely tomentose, edible."

For an illustration of this tree as grown at Brooksville, Fla., see Plate V.

34602. ANANAS SATIVUS Schult. f. **Pineapple.**

From the Seychelles Islands. Presented by Mr. P. Rivaly Dupont, curator, Botanic Station. Received October 25, 1912.

"Suckers of our best pineapples, all derived from the variety called Victoria, but more or less improved by selection from the best plants." (*Dupont.*)

34603. MEDICAGO SATIVA PILIFERA Urban. **Alfalfa.**

From Tiflis, Caucasus, Russia. Presented by Mr. A. Rolloff, director, Botanic Garden. Received November 11, 1912.

Distribution.—The southeastern part of Russia in the vicinity of the Caspian Sea.

34604. PRUNUS sp.

From Jamaica Plain, Mass. From the Arnold Arboretum. Received November 11, 1912.

34605 to 34608. OPUNTIA spp. **Prickly pear.**

From Buenos Aires, Argentina. Presented by Dr. Carlos Thays, director, Jardin Botánico. Received November 14, 1912.

Cuttings of the following:

34605. OPUNTIA ARGENTINA Grisebach.

34606. OPUNTIA BRASILIENSIS (Willd.) Haworth.

34607. OPUNTIA SPEGAZZINII Weber.

34608. OPUNTIA CALVA Lemaire. (?)

34609. PICEA BREWERIANA S. Watson. **Veiled spruce.**

From Orleans, France. Purchased from Léon Chenault & Son, Received November 14, 1912.

See S. P. I. No. 28370 for previous introduction.

34610. PRUNUS SERRULATA Lindley. **Cherry.**
(*P. paniculata* Thunb.)

From Kew, England. Presented by Sir David Prain, director, Royal Botanic Gardens. Received November 14, 1912.

"*Flore luteo pleno.* A yellow-flowered Japanese flowering cherry."

34611 to 34615.

From Rome, Italy. Presented by Dr. Gustav Eisen, California Academy of Sciences, San Francisco, Cal. Received November 18, 1912.

Quoted notes by Dr. Eisen:

34611 and 34612. FOENICULUM VULGARE Hill. **Fennel.**

34611. "*Messina finocchio* is somewhat similar or rather related to the sweet fennel, but differs in so many respects that I presume it to belong to a distinct species, or at least to a very distinct variety. It is a spring, fall, and winter plant, and is eaten from September 15 to about April 1. It loves a moderately damp and warm climate, such as the one in Italy, e. g., California and southern United States, and will probably succeed even in other States. The part eaten is the lower part of the stalk, as in celery, but the edible part is globular in the best variety, not oblong, as in celery. The interior solid part is the best, the outer leafstalk being cut away. In order to be tender, the plant must be heeled up, just like celery, either with earth or matting.

"Plant in beds under cover, beginning in July, and continue to February and March. It takes about four months to mature. When 6 inches tall, transplant in beds or rows about 12 inches apart, in rich, mellow soil. As it grows, heel up with soil, so as to bleach the lower part. Those planted in beds in July and August are eaten in September, October, and November. Those planted in February are eaten in April and May. In Rome I notice general planting in gardens, 12 inches each way, in October. The plants are then 12 inches tall. A good finocchio should weigh a pound, more or less. The inner, tender, white part is eaten raw, stewed, boiled, or roasted. It is delicious raw, like celery. Requires the same soil as celery. The richer the soil the better the result."

34612. "*Roman finocchio.*"

34613 and 34614. CAPSICUM ANNUUM L. **Red pepper.**

34613. "*Ercole Giallo* or *Golden Hercules*. Some reach the length of 6 inches, by 4 inches diameter, thickness of flesh from ⅛ to ¼ inch. Sweet, tender, can be eaten raw, like an apple, or stewed, boiled, roasted, fried in oil, etc. For three months these giant peppers are our best vegetables, and in Naples you see whole cartloads sold on the streets. There is rarely even a trace of heat. Frequently as juicy as an apple. The Golden is, in my opinion, the best, and I have eaten it raw every day for three months without any ill effect."

34614. "*Rosso.*"

34615. HIBISCUS MUTABILIS L.

"Japanese rose hibiscus. This superb plant, growing to a large shrub or small tree, is now in the garden of the Museo delle Terme in Rome and was planted some 300 years ago by Michael Angelo, or, as some say, by the Pope Giulio III. The flowers are beautiful rose and as large as a saucer, 6 inches or more across, very flat, single. When the seed was obtained the plant was covered with hundreds of flowers, the shrub being about 10 feet or more high. It differs from any hibiscus I have ever seen in California or Mexico. A splendid plant for the lawn."

34616. CITRUS sp.

From Bangkok, Siam. Presented by Mr. M. de S. Macarthur. Received November 19, 1912.

Cuttings.

34617. ASPARAGUS FILICINUS Hamilton. **Asparagus.**

From India. Presented by Mr. Norman Gill, superintendent, Kumaun Government Gardens, Jeolikote, United Provinces. Received November 20, 1912.

See S. P. I. No. 34473 for previous introduction.

Roots.

34618. MEDICAGO SATIVA GLUTINOSA (Bieb.) Urban. **Alfalfa.**

From Dublin, Ireland. Presented by Sir F. W. Moore, Royal Botanic Garden. Received November 19, 1912.

"During the summer of 1911 a plant of *Medicago glutinosa* was noticed by me in the collection of alfalfas in the Royal Botanic Garden, Dublin. The plant seemed to be the true *M. glutinosa*, as evidenced by the yellow color of the flowers; also by the pods, which had from 1 to 1¼ turns; glandular hairs were also present. Seeds of this plant were secured, but all of the seedlings raised at Washington produced purplish flowers and pods having from 2 to 3 turns, probably brought about by the cross-pollination through insects. This is all the more likely, as there were numerous purple-flowered forms of *Medicago sativa* growing in the immediate vicinity of the *glutinosa* plants." (*G. W. Oliver.*)

34619. CEIBA PENTANDRA (L.) Gaertner. **Kapok.**
(*Eriodendron anfractuosum* DC.)

From Sandakan, British North Borneo. Presented by Mr. Orlando H. Baker, American consul. Received September 24, 1912. Numbered November 21, 1912.

"The kapok tree, native in the American Tropics, is widely distributed in the Tropics of both hemispheres. It attains a height of 75 to 100 feet with wide-spreading horizontal branches, making an attractive ornamental or shade tree. It is often planted along the borders of fields for fence posts. It begins to bear seed pods with kapok down when about 5 years old, and the yield of pods increases with the age of the tree. Well-developed trees under favorable conditions yield about 7,000 pounds per acre. Kapok can not be spun, but it is an excellent material for stuffing pillows, mattresses, life preservers, etc., and its use is rapidly increasing. (*L. H. Dewey.*)

34620 and 34621.

From Nice, Alpes Maritimes, France. Presented by Dr. A. Robertson Proschowsky, Chemin des Grottes, St. Helene. Received November 20, 1912.

Quoted notes by Dr. Proschowsky:

34620. ASPARAGUS ACUTIFOLIUS L. **Asparagus.**

"This plant is abundant here in a wild state, and the young shoots are gathered and form quite a regular article of commerce in the market. The shoots are much thinner than those of *A. officinalis* L. (in its cultivated form), but are very delicate of taste. The plant grows in the very worst places as concerns absence of soil (in fissures of rocks, high on slopes of gravel, etc.), as well in the full burning sun as in deep shade, and it seems to me that so drought resisting a plant would be worth ameliorating. So I send you seeds for trial in desert countries."

34621. MAYTENUS BOARIA Molina. **Maiten.**

"A very graceful evergreen tree, exceedingly drought resisting, the foliage of which is much appreciated in Chile, its native country, as cattle fodder."

34622. ARISTIDA sp. **Bushman grass.**

From South Africa. Presented by Prof. J. Burtt Davy, Government Agrostologist and Botanist, Union of South Africa, Department of Agriculture, Pretoria. Received November 18, 1912.

"The seed of this grass is very difficult to obtain, as it grows in the far western part of the Kalahari Desert and the eastern parts of the Great and Little Bushmanland and Namaqualand. Together with the Tsama melon (S. P. I. No. 34484) it is the principal stock and game food of the country." (*Davy.*)

34625. CANAVALI OBTUSIFOLIUM (Lam.) DC.

From the Seychelles Islands. Presented by Mr. P. Rivaly Dupont, curator, Botanic Station. Received November 23, 1912.

34626. CUCUMIS MELO L. **Muskmelon.**

From Kabul, India. Presented by Mr. Wilson Popenoe, Altadena, Cal. Received November 11, 1912.

"*Sarda.*"

34627. CRATAEGUS PINNATIFIDA Bunge. **Hawthorn.**

From Nanking, China. Presented by Mr. W. Millward, University of Nanking. Received November 25, 1912.

"Red fruit (*shan cha*). I used to think the cranberry was the best fruit for sauce, but I have concluded since trying this that it is superior to the cranberry." (*Millward.*)

34629. PRUNUS CERASUS L. **Cherry.**

From Prague, Bohemia. Presented by Dr. Bohumil Nemec, at the request of Mr. W. A. Orton, of the Bureau of Plant Industry. Received November 26, 1912.

Scions.

34630. TETRASTIGMA HARMANDI Planchon.

From Los Banos, Philippine Islands. Presented by Mr. C. F. Baker, University of the Philippines, College of Agriculture. Received November 26, 1912.

"This is a tall-growing woody vine, which becomes loaded with fruit of the size and appearance of the Scuppernong grape and which is edible, making a very good "refresco." It is also used in Manila as an ornamental vine. Mr. Merrill tells me it is only found in Luzon and Indo-China." (*Baker.*)

34631. PICEA BREWERIANA S. Watson. **Veiled spruce.**

From Waldo, Oreg. Purchased from Mrs. A. M. Adams. Received November 27, 1912.

See S. P. I. No. 28370 for previous introduction.

34632. SOLANUM QUITOENSE Lamarck.

From Quito, Ecuador. Presented by Mr. S. Ordoñez Munoz. Received November 27, 1912.

Distribution.—An unarmed subshrub with fruits the size and color of a small orange, found in the vicinity of Quito, in Ecuador.

34633. CANAVALI ENSIFORME (L.) DC. **Jack bean.**

From Honolulu, Hawaii. Presented by Mr. C. K. McClelland, agronomist, Hawaii Agricultural Experiment Station. Received November 30, 1912.

"Concerning the use of jack beans as a dairy feed, Mr. P. M. Pond, of Honolulu, tells me that a few years ago he raised an excellent crop of jack beans, which he thinks averaged 20 tons per acre, but this crop, of course, was irrigated to some extent. He says that he had no great difficulty in inducing cattle to eat the jack bean. At first they refused to eat it, and then he tried wrapping it up in alfalfa and again they refused to eat it, by picking out the alfalfa and leaving the jack beans. He then ran the jack beans through a cutting machine, as he was accustomed to do with all roughage, and placed only small amounts of the jack beans in the ration with alfalfa, Para grass, and sorghum. By treating in this manner he found that they ate the vine readily, but at first refused the pods, but by the end of the week he states that they ate vines and pods quite readily and he was able to discontinue the use of alfalfa and use the jack beans in the above ration, using one-third jack beans in the roughage. Since growing this crop Mr. Pond states that he has been unable in several trials to get what he considered a good crop. The former crop was planted in July and taken off about the 1st of November. Since then he has tried different seasons of planting, but finds that the jack beans make a slow growth and have never produced as good a yield as he obtained in that first crop, and he has discontinued growing them." (*McClelland.*)

34634. CANAVALI ENSIFORME (L.) DC. **Jack bean.**

From Mayaguez, Porto Rico. Presented by Mr. C. F. Kinman, of the Porto Rico Agricultural Experiment Station. Received November 30, 1912.

"Of a large number of legumes that I have tried for a cover crop nothing seems so well adapted to all conditions and needs as *Canavali ensiforme*." (*Kinman.*)

34635. STIZOLOBIUM sp.

From Lucknow, India. Presented by Mr. H. J. Davies, superintendent, Government Horticultural Gardens. Received November 30, 1912.

"Regarding the value of the fruits as an article of food, I may say that I have eaten them regularly and appreciate them as I have other similar beans. I have not heard of any bad results from eating the pods. It must be remembered that they are eaten only in the young state, when they are tender and practically free from hair. Before cooking, the outer skin is carefully scraped so as to insure that no hairs remain. The pod is very succulent and is, so far as I know, wholesome, and may be recommended as an article of diet." (*Davies.*)

34636. FERONIELLA OBLATA Swingle.

From Saigon, Cochin China. Presented by Mr. P. Morange, Director of Agriculture, Saigon. Received November 25, 1912.

34637 to 34639.

From San José, Costa Rica. Presented by Mr. Ad. Tonduz, botanist, National Museum. Received December 16, 1912.

34637. PSIDIUM FRIEDRICHSTHALIANUM (Berg) Niedenzu.

"*Cas.*"

See S. P. I. No. 26756 for previous introduction and description.

34637 to 34639—Continued.

34638. Psidium molle Bertoloni.

"*Guisarro.*"

See S. P. I. No. 12821 for previous introduction.

Distribution.—On the slopes of the mountains in Guatemala and Costa Rica.

34639. Cyphomandra sp.

"Introduced by Mr. Carlos Wercklé, Museum Garden. The ripe fruits collected a month ago. The green fruits collected to-day, November 29, 1912. They have had no preparation and may be eaten with impunity. Plants about 1 meter 50 centimeters high, 4 to 5 centimeters in diameter at the base. Fruits hanging on long peduncles." (*Tonduz.*)

Received as *Cyphomandra quitoensis*, but the place of publication of that name has not yet been found.

34643 to 34654.

From Kioto, Japan. Presented by Miss E. R. Scidmore, Seoul, Chosen (Korea). Received November 29, 1912.

Quoted notes by Miss Scidmore:

34643. Phaseolus angularis (Willd.) W. F. Wight. **Adzuki bean.**

"*Adzuki.* The red bean used for bean paste and yokan and soup. Those of best quality cost about 15 cents United States gold per quart; smaller beans, second quality, which are most used by confectioners, cost about 10 cents United States gold per quart."

34644. Phaseolus angularis (Willd.) W. F. Wight. **Adzuki bean.**

"*Adzuki.* White, boiled, mashed, strained, cooked with sugar and kanten (seaweed gelatine) to make yokan, peppered and salted; also sugared as a confection."

34645. Soja max (L.) Piper. **Soy bean.**
(*Glycine hispida* Moench.)

The soy bean has been listed in previous inventories as *Glycine hispida* Moench. Mr. C. V. Piper has recently shown (Journ. Amer. Soc. Agron., vol. 6, p. 75–84, 1914) that the earliest name given by Linnæus to this plant was *Phaseolus max*, that the generic name should be Soja, and that the correct name is therefore *Soja max* (L.) Piper.

"*Kuro.* Used for making sweet paste, but more usually boiled with a pinch of salt and a pinch of sugar added when the water is poured off or shoyu poured on and kept hot until saturated. Served as a relish or accompaniment to each meal and always found in lunch boxes sold at railway stations."

34646. Vicia faba L. **Broad bean.**

"*Sora.* Usually toasted; when the shells split they are something like pop corn; also cooked with sugar."

34647. Vicia faba L. **Broad bean.**

"*Ota fuka.* Same as *Sora*, but fully grown. Popped like *Sora mame*, but more often boiled, first in wood ashes to remove skins, boiled soft, and sugar or shoyu added."

34648. Pisum sativum L. **Pea.**

"*Shiroi endo.* For toasting in a corn popper or dusted with sugar after boiling."

34643 to 34654—Continued.

34649. PISUM SATIVUM L. **Pea.**

"*Aio endo.* Toasted in a corn popper and sometimes sugared in different colors."

34650. PISUM ARVENSE L. **Pea.**

"*Aka endo.* Toasted in a corn popper and boiled with sugar; used for ornamenting balls of white bean paste."

34651. PHASEOLUS VULGARIS L. **Bean.**

"*Toroku mame* (meaning that 10 of these beans equal 6 sun, or inches). Boiled with sugar, dried, and eaten as a confection."

34652. PHASEOLUS VULGARIS L. **Bean.**

"*Naga uzura mame.* Boiled and dipped in hot sirup (*long quail*)."

34653. PHASEOLUS VULGARIS L. **Bean.**

"*Kintoku mame.* Boiled and dipped in sirup and dried as candy."

34654. SOJA MAX (L.) Piper. **Soy bean.**
(*Glycine hispida* Moench.)

"*Shiroi daiozu.* Used for making tofu or bean curd."

34655. ILEX PARAGUARIENSIS St. Hilaire. **Yerba maté.**

From Buenos Aires, Argentina. Presented by Dr. Carlos Thays, director, Jardin Botánico. Received November 14, 1912.

See S. P. I. No. 29097 for description.

34656. TRIFOLIUM ANGUSTIFOLIUM L. **Clover.**

Grown in the United States Department of Agriculture greenhouses at Washington, D. C., by Mr. G. W. Oliver, who collected the original seed 10 miles from Algiers. Numbered December 3, 1912.

34657. OSTERDAMIA MATRELLA (L.) Kuntze. **Manila grass.**
(*Zoysia pungens* Willd.)

From the Philippine Islands. Secured by Mr. C. V. Piper, of the Bureau of Plant Industry. Numbered December 4, 1912.

"This grass is abundant on or near the seashore in the Philippine Islands. Where closely clipped it makes a beautiful lawn. The Luneta in Manila some years ago was planted to Bermuda grass, but at the present time more than 90 per cent of the grass is the Osterdamia, which has gradually displaced the Bermuda, which it closely resembles in habit and appearance. During the past season it has been grown under temporary No. 01643. The grass has unusual promise as a lawn grass, especially near the Gulf coast and the Atlantic coast of Florida." (*Piper.*)

34658. PAEONIA sp. **Peony.**

From Mongolia. Presented by Mr. William R. Maxon, United States National Museum, who procured them through Dr. A. Hrdlička. Received December 13, 1912.

"Locality, Mongolia, about 80 miles south of the Siberian boundary, between Kiakhta and Urga, altitude 2,800 feet, occupying a narrow strip 200 to 400 feet wide on each side of the extreme summit of the ridges trending east and west; collected August, 1912." (*Maxon.*)

34659. HOLCUS SORGHUM L. **Giant Sudan sorghum.**
(*Sorghum vulgare* Pers.)

From Algiers, Algeria. Presented by Dr. L. Trabut. Received November 26, 1912.

"This seed does not come from the original shoot, which has not flowered this season, but from a seedling growing for some years. I consider that these seeds ought not to give other than hybrid descendants." (*Trabut.*)

34661 and 34662.

From Algiers, Algeria. Presented by Dr. L. Trabut. Received November 30, 1912.

34661. EUCALYPTUS TRABUTI Vilmorin. **Eucalyptus.**

"A hybrid between *Eucalyptus botryoides* and *Eucalyptus rostrata.* Beautiful red wood, suitable for furniture.

"A hybrid found by Dr. Trabut in sowing seeds of the *Eucalyptus botryoides* which stood near a *Eucalyptus rostrata.* Always tends to revert to the male parent. It is the first undoubted Eucalyptus hybrid, and the existence of hybrids in this genus has been denied by Baron Ferdinand Mueller. This hybrid is one of the most vigorous of the genus, and in a nursery row at the Mustapha Experiment Station has crowded out the pure species." (*Trabut.*)

34662. PYRUS LONGIPES Coss. and Dur. **Wild pear.**

"A tree of fair height, with few spines, and small, rounded, oval, suborbicular leaves; fruit small, globular, with very long peduncles. Occurs in the mountains of Setif, Anini, and l'Aures, where it reaches its highest development."

34663 and 34664. SOLANUM TUBEROSUM L. **Potato.**

From Bogota, Colombia. Presented by Señor J. M. Vargas Vergara. Received December 4, 1912.

Tubers of the following; quoted notes by Señor Vergara:

"Two varieties of tubers cultivated at this altitude and in the adjoining cold districts to the east. Both are comestible, and, especially the former [S. P. I. No. 34663], appreciated for table use. They grow very well both in the mixed (turboso) soil of the cold region and in the "humicos" and sandy soil of the coast (mesetas) and in the very clayey soil. The black (negra) variety has shown more power of resistance against the attacks of the *Phytophthora infestans*, which have made the acclimatization of the varieties imported from other countries impossible. The diseases which affect potatoes in other countries do not exist here."

34663.

"(No. 1.) *Tuquerrena negra.*"

34664.

"(No. 2.) *Tuquerrena blanca.*"

34665. KOKIA ROCKII Lewton. **Tree cotton.**

From Hawaii. Presented by Mr. J. F. Rock, Division of Forestry, Honolulu. Received December 7, 1912.

See S. P. I. No. 31680 for description.

"The material listed under S. P. I. No. 31680 was sent from the island of Hawaii under the name of *Gossypium drynarioides* Seemann. Seemann published under the latter name a poor description from an incomplete specimen in the British Museum, collected on the island of Molokai by Nelson, the companion of Capt. Cook. Seemann did not see the fruit and described the calyx incorrectly, owing to the state of the specimen. His species is now extinct and was confined to the island of Molokai. In

1909 another species was discovered on the island of Hawaii, from whence came the seed listed in this inventory. A study of living material and complete herbarium specimens shows these plants to be trees which are larger than any known species of Gossypium and are seen to differ from the species of that genus in several particulars. The most conspicuous of these are: One ovule in each cell of the ovary; large, rounded calyx lobes which overlap in the bud and which usually fall before the capsule develops, giving the calyx the appearance of being truncate. These trees have been considered as belonging to a genus (Kokia) distinct from Gossypium. The new genus and species were published in 1912 in Smithsonian Miscellaneous Collections, vol. 60, part 5, pages 2 and 3." (*Lewton.*)

According to Mr. J. F. Rock, the tree of ***Kokia drynarioides***, said to be dead, bore a few flowers and seed in the summer of 1914. Mr. Rock is propagating the species, and has sent some of the seed to the Office of Foreign Seed and Plant Introduction.

34666. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Deerbrook, Miss. Presented by Mr. G. M. Robertson through Mr. C. V. Piper, of the Bureau of Plant Industry. Received December 10, 1912.

"'Chicken corn' is an annual sorghum, somewhat resembling Johnson grass. It was formerly abundant throughout Louisiana and Mississippi, but of late years has become very scarce, probably due to the attacks of the sorghum midge. The origin of this sorghum is not known, and the seed is secured for the purpose of making a careful comparison with Sudan grass, S. P. I. No. 25017, and Tunis grass, S. P. I. No. 26301." (*Piper.*)

34667. ARGANIA SPINOSA (L.) Skeels. **Argan.**
(*A. sideroxylon* Roem. and Schult.)

From Tangier, Morocco. Presented by Mr. Maxwell Blake, American consul general. Received December 11, 1912.

See S. P. I. Nos. 3490 and 28783 for previous introductions and descriptions.

34668 to 34671.

From Lawang, Java. Presented by Mr. M. Buysman, Jardin Botanique. Received December 7, 1912.

34668. SWIETENIA MAHAGONI Jacquin. **Mahogany.**

"This is the sole representative of a genus of Cedrelaceæ, peculiar to the warmer parts of America, and yielding the timber known as mahogany of commerce. It is a stately tree, principally met with in Central America and Mexico, growing on the rocky soil. The leaves are imparipinnate, and the flowers axillary. The calyx is 5 cleft, short; the corolla has 5 petals, and the stamens are united into a tube bearing 10 anthers; the fruit is a 5-celled woody capsule, each cell containing numerous winged seeds. The bark is considered a febrifuge, and the seeds, prepared with oil, were used by the ancient Aztecs, as they are used by the modern Mexicans, as a cosmetic, under the name of Pepitos del Sopilotl, or Tzontecomatl. The timber is largely employed in making household furniture in this country." (*Dr. B. Seemann, in Lindley's Treasury of Botany.*)

34668 to 34671—Continued.

34669. SYZYGIUM CUMINI (L.) Skeels.
(*Eugenia jambolana* Lam.)

"A small evergreen tree met with throughout India and Burma, ascending the hills to about 6,000 feet. Is chiefly found along river beds, and is especially cultivated for its fruit in gardens and in avenues. There are several varieties that yield much better flavored fruit than others, but as a rule it is astringent and only serviceable when cooked in tarts and puddings. In Goa a wine is prepared from it, and a spirit (jambava) is spoken of by recent Sanskrit authors as distilled from the jambu. Some years ago brandy was made at Monghyr from the fermented fruit. The jáman is extensively used all over India in the manufacture of vinegar. The tasar silkworm is said to feed on the leaves of the tree. The timber is fairly durable, and is largely employed for building purposes, for agricultural implements, and for well work, since it resists the action of water. It gives a good fuel. The jambu is one of the trees held in veneration by the Buddhists, and is often planted near Hindu temples because regarded as sacred to Krishna." (*Watt, Commercial Products of India.*)

34670. CROTALARIA SALTIANA Andrews.

See S. P. I. No. 24119 for previous introduction.

34671. GUILANDINA BONDUC L. **Nickernut.**
(*Caesalpinia bonducella* Flem.)

"A leguminous plant found in nearly every tropical country, particularly upon the seashore, its extensive distribution being caused by the transportation of its seeds (which have an exceedingly hard, impervious shell) from one country to another by means of oceanic currents. It is a prickly, trailing shrub 10 or 12 feet or more in height. The flowers are of a rusty yellow color, and are borne in racemes. The pods, which are about 2 or 3 inches long, flattened, and covered with prickles, contain one, two, or three large, bony, lead-colored seeds, which are very hard and beautifully polished. The kernels have a very bitter taste, and are employed by the Indian doctors as a tonic and febrifuge." (*A. Smith, in Lindley's Treasury of Botany.*)

See S. P. I. No. 33570 for previous introduction.

34672 to 34690.

This is a collection for a comparative test to determine the relative value of *Amygdalus davidiana* as a stock for a number of different varieties of peaches. As indicated, certain of the varieties are budded on common peach stocks, while others are on *davidiana* stocks which it is planned to test. The budding was done at the Chico station, and it is believed that the test will be an impartial one.

34672 to 34683. AMYGDALUS PERSICA L. **Peach.**
(*Prunus persica* Stokes.)

34672. "Carman" on common peach (P. I. G. No. 8562).

34673. "Carman" on *A. davidiana* (S. P. I. No. 26604).

34674. "Elberta" on common peach (P. I. G. No. 8562).

34675. "Elberta" on *A. davidiana* (S. P. I. No. 26604).

34676. "Smock" on common peach (P. I. G. No. 8562).

34677. "Smock" on *A. davidiana* (S. P. I. No. 26604).

34678. "Belle of Georgia" on common peach (P. I. G. No. 8562).

34679. "Belle of Georgia" on *A. davidiana* (S. P. I. No. 26604).

34672 to 34690—Continued.

34680. "Salway" on *A. davidiana* (S. P. I. No. 26604).

34681. "Salway" on *A. davidiana* (S. P. I. No. 27110).

34682. "Crawford" on *A. davidiana* (S. P. I. No. 27116).

34683. "Crawford" on common peach (P. I. G. No. 8562).

34684 to 34688. AMYGDALUS PERSICA NECTARINA Ait. **Nectarine.**

34684. Quetta nectarine (S. P. I. No. 18235) on common peach (P. I. G. No. 8562).

34685. Quetta nectarine (S. P. I. No. 18235) on *A. davidiana* (P. I. G. No. 8481).

34686. Crosby nectarine (S. P. I. No. 11777) on apricot stock (S. P. I. No. 26048).

34687. Crosby nectarine (S. P. I. No. 11777) on *A. davidiana* (S. P. I. No. 26604).

34688. Crosby nectarine (S. P. I. No. 11777) on common peach (P. I. G. No. 8562).

34689 and 34690. DIOSPYROS KAKI L. f. **Persimmon.**

34689. *Diospyros kaki* (S. P. I. No. 16921) on *D. lotus.*

34690. *Diospyros kaki* (S. P. I. No. 22350) on *D. lotus.*

34691 to 34694.

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received December 13, 1912.

Quoted notes by Mr. Barrett:

34691. ANTIDESMA BUNIUS (L.) Sprengel. **Bignay.**

"A small, handsome tree, diœcious, with simple, dark-green, leathery leaves. The fruit is small, dark red, sweet, subacid in flavor, and produced in long racemes like the currant, and may be eaten raw or made into jelly."

See S. P. I. No. 18393 for previous introduction.

Distribution.—Throughout the hotter parts of India and eastward through the Malay Archipelago to the Philippines.

34692. MOMORDICA COCHINCHINENSIS (Lour.) Sprengel.

"An attractive climber of medium-vigorous growth, bearing roundish oblong fruits a little larger than an orange, having short orange-colored spines."

Distribution.—Southeastern Asia, extending from India to China, and in the Malay Archipelago eastward to the Philippines.

34693. UVARIA sp.

"An oblong semireniform fruit that grows in bunches of 30 to 50. The fruit is orange yellow in color; the flesh is yellowish and sweetish, gelatinous, and inclined to be acrid near the seed. The fruit grows on a scandent shrub, which should be considered an ornamental rather than an economic."

34694. CANARIUM sp. **Pili nut.**

"A large tree, indigenous to the Philippines, that produces an edible nut of excellent quality. There are two species—*Canarium ovatum* and *Canarium pachyphyllum*. Owing to the fact that the nuts of the two species are so similar to each other, it is impossible, not having seen the tree from which the nuts were obtained, to say to which species the seeds belong which are being sent you. Pili nuts are to some extent cultivated in southeastern Luzon, interplanted with coconuts."

34695. ANTIDESMA NITIDUM Tulasne.

(*A. moritzii* Muell.)

From Los Banos, Philippine Islands. Presented by Mr. C. F. Baker, University of the Philippines, College of Agriculture. Received December 9, 1912.

"One of the finest local shrubs, of good shape and covered with great numbers of pendent clusters of small berries which are long, bright red, finally black, and which are edible. This should make an important addition to ornamental shrubs for warm countries." (*Baker.*)

34696. FARADAYA SPLENDIDA Mueller.

From Bowen Park, Brisbane, Queensland, Australia. Presented by Mr. William Soutter, secretary and manager, Queensland Acclimatization Society. Received December 13, 1912.

"A very handsome climber, native of the more tropical regions of Queensland. The outer bark of the plant is used by the natives for stupefying fish. The green bark is tied in small bundles, weighted with a stone, and dropped into holes where the fish abound. The fish immediately become affected and rise to the surface, where they are easily caught." (*Soutter.*)

Distribution.—The vicinity of Rockingham Bay, in Queensland, Australia.

34697. DIOSPYROS KAKI L. f. **Persimmon.**

From Seoul, Chosen (Korea). Presented by the American consul general, Mr. George H. Scidmore. Received December 16, 1912.

"A hardy persimmon tree of the 'sheep-nose' variety, growing in the compound of this consulate general." (*Scidmore.*)

"The 'sheep-nose' variety has such good keeping qualities that I have kept them until late Easter." (*Horace N. Allen.*)

34698. PERSEA AMERICANA Miller. **Avocado.**

(*P. gratissima* Gaertn. f.)

From Rome, Italy. Presented by Dr. Gustav Eisen, California Academy of Sciences, San Francisco, Cal. Received December 16, 1912.

"The tree in question is in all probability about 100 years old, and though I do not know for certain, I think it likely to have been imported from Mexico by, or at least at the time of, Valadier, the French gardener and architect, who in the beginning of 1800 arranged the Pincio Garden. The tree is growing there in perfect vigor and health, perhaps about 40 feet high, and the trunk several feet in diameter. The variety is one which I have never seen on the Pacific coast of Mexico or Central America, the fruit being 3½ inches long by 2½ inches wide, pear shaped—that is, tapering toward the stalk end. This year there were 100 fruits or over, all arriving at perfect maturity in October and November, the last ones being picked about November 15. The earlier fruits are larger and may average from one-half inch to 1 inch more than the size given above, which refers to the late fruits. In quality this fruit is equal to the very best that I have eaten in Guatemala and Mexico and is of exquisite flavor. The seed is perfectly round, pale yellow-brown, and evidently perfectly developed. The variety is also characterized by its precocity, ripening before frost. It will succeed, without any doubt, in most parts of California, Arizona, southern Texas, and the Gulf States generally; in a word, in any territory extending from the northern limit of the hardiest orange southward—that means the San Joaquin and Sacramento Valleys in California, the Coast Range, etc. Introduced into this territory the tree would prove of immense value and would enter at once into active competition with the Mexican and island avocado now imported and sold at a prohibitive price." (*Eisen.*)

34699. SORGHASTRUM STIPOIDES (H. B. K.) Nash. **Jaragua grass.**
(*Chrysopogon avenaceus* Benth.)

From Rio de Janeiro, Brazil. Presented by Dr. S. Mascarenhas. Received December 16, 1912.

"This seed is a native of Goyaz, Brazil. It is greatly used in the cattle camps, and springs up readily in grounds which have been burned over." (*Mascarenhas.*)

34700 to 34702.

From Shantung Province, China. Grown by Dr. William R. Faries, Coachella, Cal. Received December 17, 1912.

Quoted notes by Dr. Faries:

34700. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. **Adzuki bean.**

"The red bean was introduced to try as poultry and pigeon food. They have proved good forage for hens and turkeys, and the seeds are eagerly eaten."

34701. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. **Adzuki bean.**

"The green bean was introduced to try as poultry and pigeon food. These beans are showing modification in that they are longer, apices less flattened than those grown in Shantung. I wonder if they are the 'green gram' of India."

34702. SOJA MAX (L.) Piper. **Soy bean.**
(*Glycine hispida* Mœnch.)

"The yellow bean with hairy pods (soya) I sent to the department in December, 1894, I think, from Pacific Grove, Cal., as 'Manchuria beans,' and they were sent to Maine station. This would result in failure, I think. They did not do well in Orange County, Cal., but grow well here. They are fine for green shelled beans."

34703. CARICA PAPAYA L. **Papaya.**

From Honolulu, Hawaii. Presented by Mr. J. E. Higgins, horticulturist, Hawaii Agricultural Experiment Station. Received December 18, 1912.

"This seed was grown under our number 2593.1." (*Higgins.*)

34704. HOLCUS HALEPENSIS L. **Baru grass.**
(*Sorghum halepense* Pers.)

From Seharunpur, India. Presented by Mr. A. C. Hartless, superintendent, Government Botanic Gardens, through Mr. C. V. Piper, of the United States Department of Agriculture. Received December 18, 1912.

"*Effusus.* This grass is a native in the Ganges Valley, and is closely related to the Johnson grass of the Southern States, but differs in having a larger and more open panicle." (*Piper.*)

34705 to 34709. CANAVALI spp.

From Miami, Fla. Grown by Mr. Edward Simmonds at the Plant Introduction Field Station. Received December 18, 1912.

"This seed was received in 1908 from Mr. J. S. Houser, of the Cuban experiment station. It has proven very satisfactory as a green-manure crop at Miami, the plant continuing to grow throughout the winter season." (*Simmonds.*)

34705. Brown.

34706. Brown mottled.

34707. Greenish brown.

34708. Greenish brown mottled.

34709. Pinkish brown.

34710. QUERCUS SUBER L. **Cork oak.**

From North Augusta, S. C. Presented by Dr. W. E. Mealing at the request of Mr. Peter Bisset, of the Office of Foreign Seed and Plant Introduction. Received December 20, 1912.

"Collected from trees presumably sent out by the Division of Forestry about 1891."

34711. DIOSPYROS KAKI L. f. **Persimmon.**

From Canton, China. Presented by Mr. G. Weidman Groff, Canton Christian College. Received December 26, 1912.

"*Taai hung t'sz.* Large red persimmon. This is decidedly the largest and sweetest persimmon I have ever seen. It does not have any of the astringent taste so common to the persimmon. It is very highly cultivated; rarely do you find seed. The skin is thin and of a deep-red color. Fruit that I have had on my own table of this variety measures 8 inches around at its widest circumference." (*Groff.*)

34712. STRYCHNOS PUNGENS Solereder.

From South Africa. Presented by Prof. J. Burtt Davy, government agrostologist and botanist, Union of South Africa, Department of Agriculture, Pretoria. Received December 23, 1912.

"A shrub which grows wild on the hills around Pretoria." (*Davy.*)

Distribution.—The Mozambique district and Lower Guinea and southward to the Kalahari region in southern Africa.

34713. DIOSPYROS KAKI L. f. **Persimmon.**

From Canton, China. Presented by Mr. G. Weidman Groff, Canton Christian College. Received December 27, 1912.

"*Kaai sam t'sz* (chicken-hearted persimmon). This is a rather inferior persimmon not commonly sold on the markets. The fruits are about the size and shape of a small egg and very difficult to ripen. A common method employed by the Chinese for ripening this fruit is to cover them over with the leaves from the bastard banyan tree for several days; of course we do not have frost here. This persimmon is used as the stock on which to graft the finer varieties." (*Groff.*)

34714. JATROPHA CURCAS L. **Physic nut.**

From Tampico, Mexico. Presented by Mr. Thomas H. Bevan, American vice consul in charge. Received December 23, 1912.

"A shrub about the size of a hazelnut bush, with a trunk from 6 inches to 1 foot in diameter. Its production is most prolific, the limbs often breaking off from the weight of the nuts. The nuts when first taken from the husk have a dark-brown luster, which becomes opaque after being exposed to the air for a few days. When first taken from the tree they have a taste not at all unlike that of the fresh chestnut. They are said to contain about 50 per cent of oil, which can be extracted and used for cooking, the same as cottonseed oil. These nuts can be seen growing in the yards of nearly all the Mexican houses in the outskirts of Tampico. The Mexicans prefer them to peanuts, maintaining that their flavor is much more delicate. Along the narrow strip of land between the Tuxpam Canal and the Gulf of Mexico, in the State of Vera Cruz, they grow wild by the millions, and apparently thrive better in their native state, growing in the sand dunes, than in the rich land in the valley of the Panuco." (*Bevan.*)

It should be remembered that, like many other euphorbiaceous seeds, the physic nuts have a purgative effect. They should therefore be tested with extreme care.

34715 to 34724.

From Wellington, New Zealand. Presented by Mr. G. J. Clapham, Public Works Department. Received December 4, 1912.

Quoted notes from Blackwell and Laing, Plants of New Zealand:

34715. METROSIDEROS TOMENTOSA A. Rich. **Pohutukawa.**

"This handsome tree, sometimes 70 feet in height, with spreading branches and brilliant scarlet flowers in large terminal cymes rarely grows far from the sea or an inland lake. It finds a foothold in all sorts of impossible-looking places. Often it clings to the side of a cliff, and puts forth long twisted roots that attach it to the rocky wall. Specimens may frequently be found hanging from the top of a bank, with the roots above, and the branches almost dipping into the sea below. When growing on level ground, great bunches of red fibrous rootlets may occasionally be seen hanging from the boughs. These do not reach the ground, and their function is unknown. The timber is extremely hard and durable."

34716. CLIANTHUS PUNICEUS (Don) Solander. **Kowhai.**

"A white-flowered form of the kowhai, which in its scarlet-flowered form is one of the most gorgeous of New Zealand flowering plants. With its flowers 2 inches in length in long pendulous racemes and its heavy, dark-green, glossy, pinnate leaves it should prove a desirable addition to the drooping shrubs suitable for growing in regions having but slight frosts. The flowers are said to be pollinated by birds, in its native haunts."

34717. DODONAEA VISCOSA (L.) Jacq.

"A small hard-wooded tree with viscid shoots, and linear-oblong leaves 1 to 3 inches long. Flowers green, in small terminal panicles. Fruit dark brown, flat, winged. Occurs in dry woods on both islands of New Zealand. The wood is much valued by settlers for making mauls, as it does not split."

34718. GAULTHERIA OPPOSITIFOLIA Hook. f.

"The gaultherias are the most attractive of the native New Zealand heaths, with tiny white bell-shaped flowers."

34719. GAULTHERIA RUPESTRIS (L. f.) Don.

"A very variable erect or prostrate bush, with small white flowers in racemes, occurring among rocks throughout both islands of New Zealand."

34720. PHORMIUM TENAX Forst. **Phormium.**

"Ornamental form with green and purple leaves. Some forms will stand temperature as low as 15° F. without injury and only at 9° F. are the leaves killed."

34721. PITTOSPORUM BUCHANANI Hook. f.

"A species from New Zealand, which may prove useful like other species for ornamental hedges. Seeds coated with a viscid substance."

34722. PITTOSPORUM RALPHII Kirk.

"A beautiful, somewhat laxly branched shrub 15 to 20 feet in height, found in the central district of the North Island of New Zealand. Its dark-crimson fascicled little flower bells with their slightly emergent yellow anther tips, resting on the downy white young foliage, make it, when in bloom, one of the most attractive of the large New Zealand shrubs. The ripe introrse anthers may often be found in contact with the viscid stigmas, so that the plant is probably frequently self-pollinated."

34715 to 34724—Continued.

34723. Sophora tetraptera J. Miller.

"A large flowered tree with deep-yellow blossoms, attaining a diameter of 3 feet. Leaflets in 10 to 20 pairs."

34724. Cordyline indivisa (Forst. f.) Steudel.

"A small tree not often more than 10 feet in height, found in the North and Middle Islands of New Zealand. Its leaves are very thick and leathery, with yellowish midribs. The flowers are in a drooping panicle. The fiber of the leaves is said to be stronger than that of Phormium and was used by the Maoris in making garments."

34725 and 34726. ACANTHOPHOENIX spp. **Palm.**

From Port Louis, Mauritius. Presented by Mr. G. Regnard. Received December 21, 1912.

"These are two of our forest prickly palms, the cabbage of which is commonly eaten when the tree is over 5 or 6 years of age, and is quite superior to that of *Dictyosperma alba* and *Areca rubra*." (*Regnard.*)

34725. Acanthophoenix crinita (Bory) Wendl.

34726. Acanthophoenix rubra (Bory) Wendl.

34727. Annona cherimola Miller. **Cherimoya.**

From San Jose, Costa Rica. Presented by Mr. Ad. Tonduz, botanist, National Museum. Received December 16, 1912.

See S. P. I. No. 32478 for previous introduction.

BOTANICAL NOTES AND PUBLICATION OF NEW NAMES.

PLANTS LISTED IN PREVIOUS INVENTORIES.

25630. MALUS FUSCA DIVERSIFOLIA (Bong.) Schneider.

(*Malus diversifolia* (Bong.) Roemer.)

This native Alaskan crab apple, received from the Alaska Agricultural Experiment Station, Sitka, was listed as *Malus diversifolia* (Bong.) Roemer. It is now considered, however, a subspecies of *Malus fusca*, and should read *Malus fusca diversifolia* (Bong.) Schneider.

26672 and 26685. JASMINUM FRUTICANS L.

These two jasmines secured by Mr. Frank N. Meyer, near Baidari, Crimea, Russia, have been determined as above.

PLANTS LISTED IN THIS INVENTORY.

34355. SAGUERUS MINDORENSIS (Beccari) O. F. Cook.

(*Arenga mindorensis* Beccari, Perkins, Fragmenta Florae Philippinae, p. 48, 1904.)

Seeds of a Philippine palm were received as *Arenga mindorensis* Beccari, the name under which the species was first described. The generic name Areng was published in 1803 by Labillardière (Mém. Inst. Nat. Paris, Sci. Math. Phys., vol. 4, p. 209) with one species, *Areng saccharifera* (p. 215), now identified with *Saguerus pinnata* Wurmb. (Verh. Batav. Gen., vol. 1, p. 351, 1779), the type of the genus Saguerus. As both genera were founded on the same species, the older name Saguerus is being used instead of Areng, or Arenga.

34578. PSEDERA THOMSONI (Lawson) Stuntz.

(*Vitis thomsoni* Lawson, in Hooker, Flora British India, vol. 1, p. 657, 1875.)

(*Parthenocissus thomsoni* Planchon, in De Candolle, Monographia Phanerogamarum, vol. 5, p. 453, 1887.)

Plants of this vitaceous climber from China were received under the name *Parthenocissus thomsoni*, published in 1887 by Planchon, based on *Vitis thomsoni* Lawson. The earliest name applied to this genus, however, is Psedera of Necker (Elementa, vol. 1, p. 158, 1790). It is therefore necessary to adopt here the name *Psedera thomsoni*.

34645. SOJA MAX (L.) Piper.

The soy bean has been listed in previous Inventories as *Glycine hispida* Moench. Mr. C. V. Piper has recently shown (Journ. Amer. Soc. Agron., vol. 6, p. 75–84, 1914) that the earliest name given by Linnæus to this plant was *Phaseolus max*, that the generic name should be Soja, and that the correct name is therefore *Soja max* (L.) Piper.

INDEX OF COMMON AND SCIENTIFIC NAMES.

Abelmoschus esculentus, 34465.
Abroma augusta, 34422.
Acanthophoenix crinita, 34725.
rubra, 34726.
Acer catalpifolium, 34544.
Acrocomia sp., 34417.
Actinidia sp., 34529.
chinensis, 34360.
Albizzia julibrissin, 34528.
Aleurites fordii, 34423, 34438.
moluccana, 34474.
triloba. See *Aleurites moluccana*.
Alfalfa (Ireland), 34618.
(Russia), 34603.
Alnus spp., 34593, 34596
Alsophila crinita, 34429.
Amaranth. See *Amaranthus* spp.
Amaranthus gangeticus, 34457, 34497.
mangostanus, 34455.
Ampelopsis delavayana, 34592.
megalophylla, 34537.
Amygdalus davidiana, 34515, 34516.
persica, 34343, 34519, 34672 to 34683.
nectarina, 34684 to 34688.
Ananas sativus, 34602.
Annona cherimola, 34727.
Antidesma bunius, 34691.
moritzii. See *Antidesma nitidum*.
nitidum, 34695.
Apple. See *Malus* sp.
Aralia quinquefolia. See *Panax quinquefolium*.
Arbor vitæ. See *Thuja* sp.
Arenga mindorensis. See *Saguerus mindorensis*.
Argan. See *Argania spinosa*.
Argania sideroxylon. See *Argania spinosa*.
spinosa, 34667.
Aristida sp., 34622.
Asparagus acutifolius, 34620.
filicinus, 34473, 34617.
Aspidosperma macrocarpon, 34357.
polyneuron, 34358.
Avellano. See *Gevuina avellana*.
Avocado. See *Persea americana*.

Baccaurea motleyana, 34495.
Bamboo. See *Chusquea* sp.
Bangilan. See *Sterculia macrophylla*.
Barberry (China), 34550, 34552 to 34554.
(Massachusetts), 34415.
Barley. See *Hordeum vulgare*.
Baúno. See *Mangifera verticillata*.
Bean, adzuki (China), 34700, 34701.
(Cuba), 34416.
(Japan), 34643, 34644.
asparagus. See *Vigna sesquipedalis*.
broad, 34646, 34647.
fleshy-pod, 34346 to 34348.
jack, 34633, 34634.
(Japan), 34651 to 34653.
Lyon, 34344.
mung, 34362.
soy. See *Soja max*.
sword, 34498.
Benincasa cerifera. See *Benincasa hispida*.
hispida, 34458.
Berberis aggregata, 34550.
bergmanniae acanthophylla, 34552.
levis, 34553.
liechtensteinii, 34554.
vulgaris, 34415.
Bignay. See *Antidesma bunius*.
Black gram. See *Phaseolus mungo*.
Boldo. See *Peumus boldus*.
Buddleia nivea yunnanensis, 34577, 34586.
Butternut, Chinese. See *Juglans cathayensis*.

Caesalpinia bonducella. See *Guilandina bonduc*.
Calobra. See *Ipomoea calobra*.
Camptotheca acuminata, 34534.
Canarium sp., 34694.
ovatum, 34368.

Canavali spp., 34705 to 34709.
  ensiforme, 34633, 34634.
  gladiatum, 34498.
  obtusifolium, 34625.
Capsicum annuum, 34613, 34614.
Carica papaya, 34703.
Carilla. See *Momordica charantia.*
Carissa carandas, 34364.
Cassia beareana, 34367.
Castalia stellata, 34478.
Castanea sp., 34517.
Ceiba pentandra, 34619.
Celtis spp., 34561, 34562, 34569.
Cephalotaxus fortunei, 34547.
Che. See *Cudrania tricuspidata.*
Cherimoya. See *Annona cherimola.*
Cherry (Bohemia), 34629.
  flowering, yellow, 34610.
  (Germany), 34436.
  (Siberia), 34482.
Chestnut. See *Castanea* sp.
Chrysopogon avenaceus. See *Sorghastrum stipoides.*
Chuplin, 34404.
Chusquea sp., 34408.
Citrullus vulgaris, 34459 to 34462, 34469, 34484.
Citrus sp., 34616.
Clematis chinensis, 34579.
Clianthus puniceus, 34716.
Clover. See *Trifolium angustifolium.*
Coihue. See *Nothofagus dombeyi.*
Colocasia spp., 34379, 34520.
  antiquorum. See *Colocasia esculenta.*
  esculenta, 34340.
Copigue. See *Lapageria rosea.*
Cordyline banksii, 34432.
  indivisa, 34724.
Cornus sp., 34566.
Corylopsis willmottiae, 34591.
Corylus sp., 34590.
Cotoneaster salicifolia floccosa, 34531.
Cotton, tree. See *Kokia rockii.*
Crataegus pinnatifida, 34627.
Crotalaria saltiana, 34670.
Cryptocarya peumus. See *Cryptocarya rubra.*
  rubra, 34389.
Cucumber. See *Cucumis sativus.*
Cucumis melo, 34464, 34626.
  sativus, 34499, 34500.
Cucurbita pepo, 34463.
Cudrania tricuspidata, 34493.
Cupressus funebris, 34545.
Cydonia sp., 34589.
Cyphomandra sp., 34639.
Cypress. See *Cupressus funebris.*

Dasheen. See *Colocasia esculenta.*
Deutzia glomeruliflora, 34536.
  longifolia, 34533, 34600.
Diospyros kaki, 34689, 34690, 34697, 34711, 34713.
Dodonaea viscosa, 34717.
Doekoe. See *Lansium domesticum.*
Dolichos sesquipedalis. See *Vigna sesquipedalis.*
Duku. See *Lansium domesticum.*

Eggplant. See *Solanum melongena.*
Ehretia sp., 34557.
Eleusine coracana, 34477, 34489, 34490.
Eriodendron anfractuosum. See *Ceiba pentandra.*
Escallonia arguta. See *Escallonia myrtoidea.*
  myrtoidea, 34402.
  pulverulenta, 34403.
  revoluta, 34405.
Eucalyptus spp., 34485, 34486.
  siderophloia, 34487.
  trabuti, 34661.
Eucommia ulmoides, 34598.
Eucryphia cordifolia, 34391.
Eugenia jambolana. See *Syzygium cumini.*
Euptelea davidiana. See *E. pleiosperma.*
  pleiosperma, 34568.
Evodia velutina, 34564.

Fagara stenophylla, 34575, 34588.
Fagus antarctica. See *Nothofagus antarctica.*
  dombeyi. See *Nothofagus dombeyi.*
  obliqua. See *Nothofagus obliqua.*
  procera. See *Nothofagus procera.*
Faradaya splendida, 34696.
Fennel. See *Foeniculum vulgare.*
Feroniella lucida, 34472.
  oblata, 34636.
Fern. See Tree fern.
Firmiana simplex, 34359.
Foeniculum vulgare, 34611, 34612.

Galipea multiflora, 34356.
Gaultheria oppositifolia, 34718.
  rupestris, 34719.

Geranium, rose, 34380.
Gevuina avellana, 34390.
Ginseng. See *Panax quinquefolium.*
Glycine hispida. See *Soja max.*
Gourd, alkada, or lauka, 34502.
  loofah, 34467, 34470, 34503 to 34506.
  snake, 34512, 34513.
  wax, 34458.
Gram, black. See ***Phaseolus mungo.***
Grass, baru, 34704.
  Bushman, 34622.
  jaragua, 34699.
  Manila, 34657.
Grass-tree. See *Xanthorrhoea* sp.
Gualo. See *Nothofagus obliqua.*
Guamixinga. See *Galipea multiflora.*
Guatambú. See *Aspidosperma macrocarpon.*
Guava. See *Psidium guajava.*
Guayo. See *Kageneckia oblonga.*
Guayule. See *Parthenium argentatum.*
Guilandina bonduc, 34671.

Hawthorn. See *Crataegus pinnatifida.*
Hemitelia sp., 34430.
Hibiscus esculentus. See *Abelmoschus esculentus.*
  mutabilis, 34615.
  sabdariffa, 34466.
Holcus halepensis, 34704.
  sorghum, 34433, 34476, 34659, 34666.
Holly. See *Ilex* spp.
Hordeum vulgare, 34424.

Ilex fargesii, 34525.
  macrocarpa, 34546.
  paraguariensis, 34655.
  pernyi, 34527.
Ipomoea calobra, 34491, 34492.

Jasmine. See *Jasminum fruticans.*
Jasminum fruticans, 26672, 26685, see p. 53.
Jatropha curcas, 34714.
Juglans sp., 34565.
  cathayensis, 34555.
Juniper. See *Juniperus* spp.
Juniperus cedrus, 34352.
  formosana, 34540.

Kageneckia oblonga, 34400.
Kapok. See *Ceiba pentandra.*
Kawis. See *Feroniella lucida.*
Kokia rockii, 34665.
Kowhai. See *Clianthus puniceus.*

Lagenaria vulgaris, 34502.
Langsat. See *Lansium domesticum.*
Lansium domesticum, 34421, 34496.
Lapageria rosea, 34409.
Laurel. See *Laurelia sempervirens.*
Laurelia aromatica. See *Laurelia sempervirens.*
  sempervirens, 34388.
Ligustrum sp., 34594.
Lilium sp., 34378.
Lily. See *Lilium* sp.
  palm. See *Cordyline banksii.*
  water. See *Castalia stellata.*
Lingue. See *Persea lingue.*
Liquidambar formosana, 34583.
Lithrea caustica, 34383.
  venosa. See *L. caustica.*
Litre. See *Lithrea caustica.*
Lonicera similis delavayi, 34570.
Luffa acutangula, 34470, 34503, 34504.
  aegyptiaca. See *Luffa cylindrica.*
  cylindrica, 34467, 34505, 34506.
Lum. See *Escallonia myrtoidea.*
Luma. See *Myrtus* sp.
Lumbang. See *Aleurites moluccana.*

Macadamia ternifolia, 34437.
Maclura tricuspidata. See *Cudrania tricuspidata.*
Magnolia wilsonii, 34599.
Mahogany. See *Swietenia mahagoni.*
Maiten. See *Maytenus boaria.*
Malus sp., 34521.
  fusca diversifolia, 25630; see p. 53.
Mangifera indica, 34412, 34440 to 34454.
  verticillata, 34353, 34431.
Mango, Amelia Martinique, 34443.
  Bombay Special, 34453.
  Chinois Martinique, 34448.
  De Boissière, 34454.
  Divine Martinique, 34445.
  Julie Martinique, 34440.
  Julie Leotaud, 34449.
  Madame, 34441.
  Martin, 34450.
  Minnie, 34446.
  Mistake Divine, 34444.
  Neelum, 34442.
  Oahu, 34412.
  Salem, 34447.
  Tamancha, 34452.
  Walajah Pasand, 34451.

Maple. See *Acer catalpifolium.*
Mardroña. See *Escallonia pulverulenta.*
Marlea begonifolia. See *Stylidium chinense.*
Maté, yerba. See *Ilex paraguariensis.*
Mayo. See *Sophora macrocarpa.*
Maytenus boaria, 34397, 34621.
Medicago sativa glutinosa, 34618.
  pilifera, 34603.
Meladendron chilense, 34406.
Menispermum sp., 34535.
Metrosideros tomentosa, 34715.
Momordica charantia, 34468, 34507.
  cochinchinensis, 34692.
Morus sp., 34559.
Mulberry. See *Morus* sp.
Muskmelon. See *Cucumis melo.*
Myrtus sp., 34382.

Nectarine. See *Amygdalus persica nectarina.*
Neillia affinis, 34542.
Nephelium lappaceum, 34494.
Nickernut. See *Guilandina bonduc.*
Nipa palm. See *Nypa fruticans.*
Nothofagus antaratica, 34385.
  dombeyi, 34381.
  obliqua, 34384.
  procera, 34386.
Nymphaea stellata. See *Castalia stellata.*
Nypa fruticans, 34420.

Oak, cork. See *Quercus suber.*
Okra. See *Abelmoschus esculentus.*
Opuntia argentina, 34605.
  brasiliensis, 34606.
  calva, 34608.
  spegazzinii, 34607.
Oryza sativa, 34475.
Osterdamia matrella, 34657.

Paeonia sp., 34658.
Paliurus orientalis, 34532.
Palm lily. See *Cordyline* Banksii.
  (Mauritius), 34725, 34726.
  Nipa. See *Nypa fruticans.*
  (Philippine), 34355.
Palo negro. See *Meladendron chilense.*
  santo. See *Eucryphia cordifolia.*
Panax quinquefolium, 34471.
Papaya. See *Carica papaya.*
Parthenium argentaum, 34413.
Parthenocissus thomsoni. See *Psedera thomsoni.*
Pea. See *Pisum* spp.
Peach (budding tests), 34672 to 34683.
  (China), 34515, 34516, 34601.
  (Guadeloupe), 34519.
  (Turkestan), 34343.
Pear (Turkestan), 34341.
  wild, 34662.
Pelargonium sp., 34380.
Pentaclethra macrophylla, 34351.
Peony. See *Paeonia* sp.
Pepper, red. See *Capsicum annuum.*
Peroba. See *Aspidosperma polyneuron.*
Persea americana, 34698.
  gratissima. See *P. americana.*
  lingue, 34387.
Persimmon (China), 34689, 34690, 34711, 34713.
  (Korea), 34697.
Peumo. See *Cryptocarya rubra.*
Peumus boldus, 34393.
Phaseolus angularis, 34416, 34643, 34644, 34700, 34701.
  aureus, 34362.
  mungo, 34363.
  vulgaris, 34651 to 34653.
Phellodendron sachalinense, 34556, 34573, 34587.
Phormium tenax, 34720.
Physic nut. See *Jatropha curcas.*
Picea breweriana, 34609, 34631.
Pili nut. See *Canarium* spp.
Pilo, 34396.
Pine. See *Pinus* spp.
Pineapple. See *Ananas sativus.*
Pinus massoniana, 34548.
  sinensis, 34538, 34549.
Pisum arvense, 34650.
  sativum, 34648, 34649.
Pittosporum buchanani, 34721.
  ralphii, 34722.
Plane tree, oriental. See *Platanus orientalis.*
Platanus orientalis, 34342.
Plum. See *Prunus* spp.
Pohutukawa. See *Metrosideros tomentosa.*
Poliothyrsis sinensis, 34584.
Pop corn. See *Zea mays.*
Portulaca oleracea, 34456, 34510.
Potato. See *Solanum tuberosum.*
Prickly pear. See *Opuntia* spp.
Prunus spp., 34434, 34435, 34604.
  cerasus, 34436, 34629.
  chamaecerasus. See *Prunus fruticosa.*

Prunus conradinae, 34558, 34560, 34563.
cyclamina, 34571.
davidiana. See *Amygdalus davidiana*.
dehiscens, 34539.
dielsiana laxa, 34576.
fruticosa, 34482.
humilis, 34414.
mira, 34601.
mume, 34582.
paniculata. See *Prunus serrulata*.
persica. See *Amygdalus persica*.
serrulata, 34610.
tenuiflora, 34574.
Psedera thomsoni, 34578.
Psidium friedrichsthalianum, 34637.
guajava, 34418.
molle, 34638.
Pumpkin. See *Cucurbita pepo*.
Purslane. See *Portulaca oleracea*.
Pyrus spp., 34341, 34567.
longipes, 34662.

Queensland nut. See *Macadamia ternifolia*.
Quercus suber, 34710.
Quillai. See *Quillaja saponaria*.
Quillaja saponaria, 34407.

Ragi. See *Eleusine coracana*.
Rambe. See *Baccaurea motleyana*.
Rambutan. See *Nephelium lappaceum*.
Raspberry. See *Rubus* sp.
Rauli. See *Nothofagus procera*.
Red pepper. See *Capsicum annuum*.
Reevesia sp., 34530.
Rhamnus dumetorum crenoserratus, 34595.
Rice. See *Oryza sativa*.
Roble. See *Nothofagus antarctica*.
Rosa damascena trigintipetala, 34479.
gallica, 34480, 34481.
Rose. See *Rosa* spp.
Roselle. See *Hibiscus sabdariffa*.
Rubus sp., 34419.
Rye. See *Secale cereale*.

Saguerus mindorensis, 34355.
Salix sp., 34354.
Secale cereale, 34349, 34350.
Siete camisas. See *Escallonia revoluta*.
Soja max, 34645, 34654, 34702.
Solanum melongena, 34511.
quitoense, 34632.
tuberosum, 34663, 34664.
Sophora sp., 34396.
macrocarpa, 34399.
tetraptera, 34723.
Sorghastrum stipoides, 34699.
Sorghum, chicken corn, 34666.
(German East Africa), 34476.
giant Sudan, 34659.
(Paraguay), 34433.
Sorghum halepense. See *Holcus halepensis*.
vulgare. See *Holcus sorghum*.
Spruce, veiled, 34609, 34631.
Sterculia macrophylla, 34366.
platanifolia. See *Firmiana simplex*.
Stizolobium spp., 34345, 34439, 34508, 34635.
cinereum, 34509.
niveum, 34344.
pachylobium, 34346 to 34348.
Stranvaesia davidiana, 34543.
Strychnos pungens, 34712.
Stylidium chinense, 34524, 34597.
Swietenia mahagoni, 34668.
Syzygium cumini, 34669.

Tetracentron sinense, 34523.
Tetrastigma harmandi, 34630.
Thuja orientalis, 34541.
Tree cotton. See *Kokia rockii*.
fern, 34429, 34430.
Trichosanthes anguina, 34512, 34513.
Trifolium angustifolium, 34656.
Triticum aestivum, 34425.
vulgare. See *Triticum aestivum*.
Tu chung. See *Eucommia ulmoides*.

Undetermined, 34392, 34394, 34401, 34404.
Urd. See *Phaseolus mungo*.
Uvaria sp., 34693.
grandiflora, 34522.
purpurea. See *Uvaria grandiflora*.

Vetch. See *Vicia* spp.
Viburnum foetidum rectangulatum, 34526.
Vicia faba, 34646, 34647.
villosa, 34361.
Vigna sesquipedalis, 34514.
Vitis sp., 34580.
flexuosa, 34581.
thomsoni. See *Psedera thomsoni*.

Walnut. See *Juglans* sp.
Water lily. See *Castalia stellata.*
Watermelon, Early Lucknow, 34459.
  Farrukhabad, 34460.
  red, bottle shaped, 34461.
  round, black-red, 34462.
  Tinda, 34469.
  Tsama, 34484.
Wheat. See *Triticum aestivum.*
Willow. See *Salix* sp.
Wood-oil tree. See *Aleurites fordii.*

Xanthorrhoea sp., 34488.

Yangtaw. See *Actinidia chinensis.*
Yerba maté. See *Ilex paraguariensis.*

Zanthoxylum sp., 34551.
  stenophyllum. See *Fagara stenophylla.*
Zea mays, 34426, 34427.
Zoysia pungens. See *Osterdamia matrella.*

Issued September 8, 1915.

U. S. DEPARTMENT OF AGRICULTURE.
BUREAU OF PLANT INDUSTRY.
WILLIAM A. TAYLOR, *Chief of Bureau.*

INVENTORY
OF
SEEDS AND PLANTS IMPORTED
BY THE
OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM JANUARY 1 TO MARCH 31, 1913.

(No. 34; Nos. 34728 TO 35135.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1915

BUREAU OF PLANT INDUSTRY.

Chief of Bureau, WILLIAM A. TAYLOR.
Assistant Chief of Bureau, KARL F. KELLERMAN.
Officer in Charge of Publications, J. E. ROCKWELL.
Chief Clerk, JAMES E. JONES.

FOREIGN SEED AND PLANT INTRODUCTION.

SCIENTIFIC STAFF.

David Fairchild, *Agricultural Explorer in Charge.*

P. H. Dorsett, *Plant Introducer, in Charge of Plant Introduction Field Stations.*
Peter Bisset, *Plant Introducer, in Charge of Foreign Plant Distribution.*
Frank N. Meyer and Wilson Popenoe, *Agricultural Explorers.*
H. C. Skeels, S. C. Stuntz, and R. A. Young, *Botanical Assistants.*
Allen M. Groves, Nathan Menderson, and Glen P. Van Eseltine, *Assistants.*
Robert L. Beagles, *Superintendent, Plant Introduction Field Station, Chico, Cal.*
Edward Simmonds, *Superintendent, Subtropical Plant Introduction Field Station, Miami, Fla.*
John M. Rankin, *Superintendent, Yarrow Plant Introduction Field Station, Rockville, Md.*
E. R. Johnston, *Assistant in Charge, Plant Introduction Field Station, Brooksville, Fla.*
Edward Goucher and H. Klopfer, *Plant Propagators.*
Collaborators: Aaron Aaronsohn, *Director, Jewish Agricultural Experimental Station, Haifa, Palestine;* Thomas W. Brown, *Gizeh, Cairo, Egypt;* Dr. Gustav Eisen, *California Academy of Sciences, San Francisco, Cal.;* E. C. Green, *Serviço do Algodao, Rio de Janeiro, Brazil;* A. C. Hartless, *Seharunpur Botanic Gardens, Seharunpur, India;* Barbour Lathrop, *Chicago, Ill.;* William S. Lyon, *Gardens of Nagtajan, Manila, P. I.;* Miss Eliza R. Scidmore, *Yokohama, Japan;* Charles Simpson, *Little River, Fla.;* Dr. L. Trabut, *Director, Service Botanique, Algiers, Algeria;* E. H. Wilson, *Arnold Arboretum, Jamaica Plain, Mass.*

CONTENTS.

Page.
Introductory statement 5
Inventory 9
Botanical note and publication of a new name 46
Index of common and scientific names 47

ILLUSTRATIONS.

Page.
PLATE I. A large-fruited fine-flavored papaya (*Carica papaya* L.) from Yucatan (S. P. I. No. 34903) 24
II. An evergreen shade tree (*Harpephyllum caffrum* Bernh.) for windy locations in Florida (S. P. I. No. 34943) 24
III. Fruiting tree of the Menakher date palm (S. P. I. No. 35083) 40
IV. A new palmetto (*Inodes exul* O. F. Cook), discovered by Mr. Cook at Victoria, Tex. (S. P. I. No. 35116) 40
V. The Veranero avocado (*Persea americana* Miller) from Caracas, Venezuela (S. P. I. No. 35121) 44
VI. Root and vine of the yam bean (*Cacara erosa* (L.) Kuntze, formerly known as *Pachyrhizus angulatus* Rich.) (S. P. I. No. 35135) 44

INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM JANUARY 1 TO MARCH 31, 1913 (NO. 34; NOS. 34728 TO 35135).

INTRODUCTORY STATEMENT.

The period covered by this inventory was characterized by no especially notable explorations, and the material listed is therefore largely that sent in by correspondents in foreign countries who are interested in plant-introduction work and have sent material in response to requests or on their own initiative. The growth of a keen interest in the domestication of wild plants all over the world is one of the most remarkable phenomena observable in connection with the foreign correspondence of the Office of Foreign Seed and Plant Introduction. That the exchange of seeds and plants of a purely experimental character builds up this interest and leads to the improvement of the crop plants of the world there can be no possible doubt, and there are some importations in this inventory which, though little known now, may play a distinctly important rôle in some of the plant industries of the country.

The cultivation of the avocado has reached the stage when every new and promising variety is deserving of a thorough trial. The two varieties from Campeche and Merida, Yucatan, collected by Mr. Collins (Nos. 34855 and 34856), the yellow-skinned variety known as Veranero from the higher altitudes of Venezuela, collected by Prof. Pittier (No. 35121), and the seedling (No. 34831) found by Dr. Eisen in the Pincio Gardens in Rome will be interesting to prospective as well as present growers of the fruit.

A really excellent fodder tree, such as that found by Mr. Collins in general use in Yucatan, can hardly fail to be of interest to forage-crop specialists. It is called the ramon, or bread-nut tree, and affords good fodder during the dry season around Merida (No. 34876).

Hardy ornamental shrubs which will stand the trying climates of the Great Plains are in great demand among those whose homes are there, and the collection of poplars, honeysuckles, and cotoneasters (Nos. 34784 to 34805), secured by Mr. Frank N. Meyer from Mr. A. D. Woeikoff, at Novospassko, Russia, should prove interesting to these. The tamarisk, as a drought and alkali resistant tree, is already attracting attention in the Southwest, and a Kashgar species (No. 34780) will be a welcome addition to the collections which are being propagated for distribution there.

Among forage grasses *Poa pallens* (No. 34807), from Argentina, said to resemble Kentucky bluegrass, and *Eragrostis superba* (No. 34818), one of the best native South African pasture grasses of the high veld, where there are only 10 inches of rainfall, are worthy of special mention. A certain interest attaches to the introduction of *Stevia rebaudiana* (No. 34883), as this is the plant which several years ago thrilled the sugar-manufacturing world with its supposed possibilities. It was discovered, however, that the sweetness, which was said to be 16 times that of cane sugar, was produced by a glycerin and not by a new sugar.

The huge-fruited papaya (No. 34777) and a dwarf form which fruits when 7 feet high (No. 34903) from Yucatan, may be useful for the large amount of papain they can produce, even though their fruits may be too large to ship well.

A new and spineless holly (No. 34836), one of Mr. E. H. Wilson's discoveries in central China, with slender flexible branches and leaves 4 to 5 inches long, will probably become popular wherever it proves hardy. A beautiful red-flowered variety of *Leptospermum scoparium* (No. 34853) from New Zealand, which will thrive in the citrus belt, and *Sterculia quadrifida* (No. 34873), with brilliant crimson pods, from Queensland, will be welcomed by the residents of Florida and California.

The breeders interested in the improvement of our plums and cherries will be glad to have plants of the wild plum of the Maritime Alps, *Prunus brigantina* (No. 34851).

Those experimenters who have already grown male vines of the Chinese yangtaw, *Actinidia chinensis* (No. 35133), will be glad to plant out a specimen grown from cuttings of a female vine which fruited in Chelsea, London, in 1911.

Our already large collection of oriental persimmons has been enriched by three new kaki varieties (Nos. 34970 to 34972), among which is a large-fruited form used for drying purposes. The best dried persimmons are almost as palatable as dried figs.

It is to be hoped that somewhere in Florida amateurs can grow the curious ear flower of the Aztecs (No. 35039), used by them to flavor their chocolate perhaps centuries before the Spaniards landed in Mexico.

The new edible bean of Togoland (No. 34916), which buries its pods quite as the peanut does, and an undetermined plant from Angola, which produces edible tubers like potatoes (No. 34913), will appeal to the curious among our experimenters and may have unsuspected possibilities in them.

Whether the Palmyra palm of India (No. 35040) can be grown in southern California or Florida remains to be seen. In India it thrives in a hot, dry climate similar to ours and is cultivated for its sugar and the toddy which the Indians make from its sap. On the mainland of India and in Ceylon 100,000 acres of these palms are said to be cultivated.

Some remarkable forest trees and shrubs are possibly to be found among the 14 species of seed (Nos. 34837 to 34850) received from Castlemaine, Victoria, Australia.

From a previous introduction (No. 22326) Mr. Conner, at Chillicothe, Tex., has selected a dwarf form of kafir (No. 34911), similar to feterita, which seems to have unusual drought-resistant qualities, making it worthy of further distribution.

The manuscript of this inventory has been prepared by Miss May Riley, the botanical determinations have been made and the notes on geographic distribution compiled by Mr. H. C. Skeels, and the notes on nomenclature have been prepared under the supervision of the Committee on Scientific Orthography by Mr. S. C. Stuntz, who has general supervision of the inventories, as well as of the other publications of this office.

David Fairchild,
Agricultural Explorer in Charge.

Office of Foreign Seed and Plant Introduction,
Washington, D. C., December 8, 1914.

INVENTORY.

34728 to 34730.

From Trivandrum, Travancore, southern India. Presented by the Director of Agriculture. Received January 2, 1913.

Plants of the following:

34728. CYMBOPOGON CITRATUS (DC.) Stapf. **Lemon grass.**
(Andropogon citratus DC.)[1]

See S. P. I. No. 33786 for previous introduction and description.

34729. CYMBOPOGON NARDUS (L.) Rendle. **Citronella.**
(Andropogon nardus L.)

See S. P. I. No. 33787 for previous introduction.

34730. VETIVERIA ZIZANIOIDES (L.) Nash. **Vetiver.**
(Andropogon squarrosus L. f.)

Distribution.—A stout grass found throughout the plains and lower hills of India, up to an elevation of 4,000 feet; generally cultivated and escaped into fields in Louisiana.

34731. PHASEOLUS VULGARIS L. **Bean.**

From Bigstone, S. Dak. Presented by Mr. C. J. Brand, of the Bureau of Plant Industry. Received December 30, 1912.

"The parent seed from which this sample was produced in 1912 was brought to Redwood Falls, Minn., from Schleswig-Holstein, Germany, in 1852, by Mrs. Herman Neuenberg. This sample was grown by my mother in her garden. It is more productive than the sorts usually grown in the Northwest, has a longer growing season, cooks much more quickly when cooked as a green snap bean, and recovers after a severe frost and continues to produce." *(Brand.)*

34732. NORMANBYA MERRILLII Beccari. **Bonga de China.**

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received January 7, 1913.

"A medium-sized palm with graceful, somewhat curved, pinnate leaves, somewhat resembling the common betelnut palm, but not so tall. The leaves are rather glaucous, and the pretty crimson fruits are borne just below the leaves in medium-sized bunches, the individual fruits less than 1 inch long. One of our most ornamental medium-sized palms, which thrives remarkably well in Manila." *(E. D. Merrill.)*

34733. ZEA MAYS L. **Corn.**

From Malta. Presented by Lieut. Col. E. P. S. Roupell, Lieutenant Governor and Chief Secretary to Government of Malta, through the American consul, Mr. James Oliver Laing. Received January 6, 1913.

"Maltese-grown corn, very red in color. This produces only one head per seed and on unirrigated ground the plant is about 2 feet 6 inches high. On irrigated ground the plant will grow 5 or 6 feet high."

---

[1] The italicized names in parentheses are the Index Kewensis names, added for convenience in connecting the names used in this Inventory with the foreign literature in regard to the plants.

34734 to 34751.

From Lawang, Java. Presented by Mr. M. Buysman, Jardin Botanique. Received December 2, 1912.

Seeds of the following:

34734. ACANTHOSICYOS HORRIDA Welw. **Narras.**

See S. P. I. Nos. 31401 and 31738 for previous introduction and description.

34735. ACROCOMIA TOTAI Mart. **Palm.**

Distribution.—A palm found in the provinces of Santa Cruz de la Sierra, Chiquitos, and Moxos, in Bolivia.

34736. ANACARDIUM sp. **Cashew.**

"From Japan."

34737. CITRULLUS VULGARIS Schrad. **Watermelon.**

34738. PTYCHOSPERMA GRACILIS. Labill. **Alexandra palm.**

"This wood is beautifully marked, and is much in favour for walking sticks, the outer portion being cut into suitable thicknesses for this purpose. It grows to a height of 70 to 80 feet, and occurs in Queensland." (*Maiden, Useful Native Plants of Australia.*)

34739. CARYOTA SOBOLIFERA Mart. **Palm.**

Distribution.—A palm 15 to 25 feet high, growing in the vicinity of Malakka, in the Malay Peninsula.

34740. CROTALARIA GRANTIANA Harvey.

See S. P. I. No. 31844 for previous introduction.

34741. ELAEIS GUINEENSIS Jacq. **African oil palm.**

See S. P. I. No. 22713 for previous introduction.

34742. LICUALA PELTATA Roxb. **Palm.**

"An ornamental fan palm from Assam, Burma, etc."

See S. P. I. No. 22711 for previous introduction.

34743. LOXOCOCCUS RUPICOLA (Thwaites) Wendl. and Drude. **Dotalu.**

"A pinnate-leaved palm from the moist region of Ceylon, occurring at an elevation of from 1,000 to 5,000 feet. Stems slender, erect, growing to a height of from 20 to 30 feet." (*Macmillan, Handbook of Tropical Gardening and Planting.*)

34744. ONCOSPERMA FILAMENTOSUM Blume. **Nibung palm.**

Distribution.—A tall palm found in the islands of the Malay Archipelago.

34745. RHAPIS FLABELLIFORMIS L'Herit. **Palm.**

See S. P. I. No. 22707 for previous introduction.

34746. RICINUS COMMUNIS L. **Castor bean.**

"From Ecuador."

34747. ROYSTONEA REGIA (H. B. K.) Cook. **Royal palm.**
(*Oreodoxa regia* H. B. K.)

34748. SAGUERUS PINNATUS Wurmb. **Palm.**
(*Arenga saccharifera* Labill.)

See S. P. I. No. 26937 for previous introduction.

34749. THEA SINENSIS L. **Tea.**
(*Camellia thea* Link.)

See S. P. I. Nos. 26330 to 26343 for previous introductions.

34750. (Undetermined.)

34751. (Undetermined.)

34752 to 34754. NICOTIANA RUSTICA L. **Tobacco.**

From Scafati, Italy. Presented by Mr. A. Splendore, director, Royal Experimental Institute for the Cultivation of Tobacco. Received January 4, 1913.

"This *Nicotiana rustica*, abundantly fertilized with night soil (from cess pools or pits), may yield up to 30 or more quintals of leaves per hectare, with a nicotine content of over 10 per cent in our climate." (*Splendore.*)

Seeds of the following:

34752. "*Brasile leccese.* Originally from Brazil, established in the cultivated district of Nardo, Province of Lecce."

34753. "*Brasile selvaggio.* Wild Brazilian, originally from Brazil, established in the Palermo district."

34754. "*Erbasanta.* Originally from Brazil, established in the cultivated district of Cava dei Terreni, Province of Lecce."

34755 to 34767.

From Lawang, Java. Presented by Mr. M. Buysman, who received these seeds from Paraguay. Received December 2, 1912.

Seeds of the following:

34755. CITRUS sp.

"Large fruits."

34756. CITRUS sp.

"With brown skin."

34757. COCOS ROMANZOFFIANA Cham. **Palm.**

"An elegant palm, reaching a height of 40 feet, native of extratropical Brazil."

34758. COLLETIA CRUCIATA Gill. and Hook.

"An evergreen rhamnaceous shrub from Chile, with pale yellow flowers."

34759. POUTERIA NERIIFOLIA (Hook. and Arn.) Radlk.
(*Lucuma neriifolia* Hook. and Arn.)

See S. P. I. No. 8951 for previous introduction.

34760. MYRTUS sp.

"Edible fruit."

34761. MYRTUS sp.

"Edible fruit."

34762. PHILODENDRON ROBUSTUM Schott.

Distribution.—A climbing shrubby aroid found in tropical America.

34763. PSIDIUM GUAJAVA L. **Guava.**

"Wild."

34764. ROLLINIA sp.

"Wild plant."

34765. THUNBERGIA ALATA Bojer.

"A yellow-flowered climber from South America."

Distribution.—A shrubby climber with orange or buff flowers, growing in tropical Africa and generally cultivated in the Tropics.

34766. (Undetermined.)

34767. IPOMOEA QUAMOCLIT L. **Cypress vine.**

"Climber, red flowered."

34768. Eleusine coracana (L.) Gaertner. **Ragi.**

From Bangalore, Mysore, India. Presented by Mr. H. V. Krishnayya, Acting Officer in Charge of the Agricultural Department. Received January 8, 1913.

"*Hasaragumbi.* The ground should be plowed 4 to 6 times with an ordinary plow; rake with a bullock rake a day or two before sowing, sow with a country drill as a mixed crop, mixture being jola (*Andropogon sorghum*) and avare (*Dolichos lablab*), middle or end of June. Should be weeded with a hand hoe, two to four times, as required. (The particular plat from which the sample is brought was weeded only once.) It is harvested and stacked in November; thrashing and winnowing, December to February; yield, 1,500 to 2,000 lbs." (*Krishnayya.*)

34769 and 34770.

From Hangchow, China. Presented by Rev. J. H. Judson, Hangchow College. Received January 10, 1913.

Seeds of the following:

34769. Sapindus sp. **Soapberry.**

34770. Thea sinensis L. **Tea.**
(*Camellia thea* Link.)

34771. Chaetochloa italica (L.) Scribn. **Kursk millet.**
(*Setaria italica* Beauv.)

Grown at Akron, Colo., in 1912. Received December 26, 1912.

"This strain of millet is the product of a single plant selected at the Belle Fourche, S. Dak., Experiment Farm, in 1908, by Mr. A. C. Dillman, of the Office of Alkali and Drought Resistant Plant Breeding Investigations. The original seed (S. P. I. No. 22420) was obtained from the Dakota Improved Seed Company from a selected strain of Kursk millet developed by Prof. W. A. Wheeler. This strain of millet is of excellent forage type, is good in seed production, and is drought resistant." (*Dillman.*)

34772. Medicago carstiensis Wulfen.

From Edinburgh, Scotland. Presented by Prof. Bayley Balfour, regius keeper, Royal Botanic Garden. Received January 13, 1913.

34773 and 34774.

From German East Africa. Presented by the Usumbwa Company, Post Tabora. Received January 14, 1913.

34773. Curcuma longa L. **Turmeric.**

"Resembles ginger in the nature and form of its rhizomes and rounded tubers, but larger and shorter. In commerce they are separated into 'longs' and 'rounds.' In India much of the turmeric is used for dyeing silk, because the tuber contains a starch associated with a coloring matter (curcumine) of a beautiful orange yellow. Because of its essential aromatic oil it is used as a condiment in the Far East, and especially in the manufacture of curry. Many tribes of Polynesia use it to stain their bodies and their hair. Curcuma is known still in the spice trade under the name of Indian saffron, and in the West Indies under that of coolie saffron." (*Capus et Bois, Les Produits Coloniaux.*)

34774. Carica papaya L. **Papaya.**

34775. CITRUS sp. **Orange.**

From Shaowu, Fukien, China. Presented by Rev. J. E. Walker, D. D. Received January 13, 1913.

"On a recent visit to a small city near the back side of this province we were presented with some unusually large oranges, a little tart, but thin skinned, tender, juicy, and rich. The largest ones measured nearly 3 inches in diameter, cross section, and were regular in shape. In this region 5 to 10 degrees of frost occur." (*Walker.*)

34776. PHASEOLUS AUREUS Roxb. **Mung bean.**

From Beira, Portugese East Africa. Presented by Mr. R. H. B. Dickson, Assistant Director of Agriculture. Received January 10, 1913.

"On the Zambezi River this seed is termed '*Soroko*,' on the coast '*Shoombi*,' and in the interior between Beira and the Zambezi River it is known as '*Zoombi*.'" (*Dickson.*)

34777. CARICA PAPAYA L. **Papaya.**

From Merida, Mexico. Collected by Mr. G. N. Collins, of the Bureau of Plant Industry. Received January 14, 1913.

"This seed was secured in the market at Merida, Mexico, December 29, 1912. These seeds are from a specimen measuring 19 inches in length by 22 inches in circumference." (*Collins.*)

34778 to 34780.

From Angers, France. Purchased from Charles Detriche, sr. Received January 14, 1913.

34778. ARISTOTELIA CHILENSIS (Molina) Stuntz. **Maqui.**
(*A. macqui* L'Herit.)

34779. POPULUS SIMONII Carrière. **Poplar.**

Distribution.—A poplar belonging to the *candicans* group, found in the province of Yunnan in China.

34780. TAMARIX KASHGARICA Lemoine. **Tamarisk.**

Distribution.—A Tamarix with small, glaucous leaves which are closely appressed to the stem, found in central Asia.

34782 and 34783.

From Jamaica Plain, Mass. Presented by the Arnold Arboretum. Received January 2, 1913.

Seeds of the following; quoted notes by Mr. Sargent:

34782. CRATAEGUS ARNOLDIANA Sargent. **Hawthorn.**

"This is one of the best of the large-flowered, large-fruited species. The fruit ripens in August and is edible."

34783. ACANTHOPANAX RICINIFOLIUM (Sieb. and Zucc.) Seem.

"A desirable hardy ornamental tree from northern Japan."

34784 to 34805.

From Novospassko, Syzran-Riazan R. R., Russia. Purchased from Mr. A. Woeikoff by Mr. Frank N. Meyer, of the Bureau of Plant Industry. Received January 15, 1913.

Plants of the following:

34784. ACER GINNALA SEMENOVII (Reg. and Herd.) Pax. **Maple.**

"(No. 8.)"

34784 to 34805—Continued.

34785. Corylus avellana L. **Filbert.**

"(No. 7.)"

34786. Cotoneaster ignava Wolf.

"(No. 6.)"

34787. Halimodendron halodendron (Pallas) Voss.
(*Halimodendron argenteum* Fisch.)

34788. Lonicera floribunda Boiss. and Buhse. **Honeysuckle.**

"(No. 5.)"

Distribution.—A shrub with reddish yellow flowers and red berries, found at an elevation of 4,000 feet on the slopes of the mountains in northern Persia.

34789. Populus alba L. **Poplar.**

"(No. 10.)"

34790. Populus deltoides Marsh. **Poplar.**
(*Populus monilifera* Ait.)

"(No. 21.)"

34791. Populus balsamifera L. **Poplar.**

"(No. 13.)"

34792. × Populus berolinensis Koch. **Poplar.**

"(No. 15.)"

34793. Populus deltoides Marshall. **Poplar.**

"(No. 20.)"

34794. Populus candicans Aiton. **Poplar.**

"(No. 14.)"

34795. Populus nigra L. **Poplar.**

"(No. 18.)"

34796. Populus nigra L. **Poplar.**

"(No. 19) *Pushkiniana.*"

34797. Populus laurifolia Ledeb. **Poplar.**

"(No. 12.)"

34798. Populus simonii Carrière. **Poplar.**

"(No. 16.)"

Distribution.—A tree found in the vicinity of Peking, China.

34799. Populus suaveolens Fischer. **Poplar.**

"(No. 22.)"

34800. Populus tremula L. **Poplar.**

"(No. 17.)"

34801. Populus petrowskiana Schroeder. **Poplar.**

"(No. 11.)"

34802. Prunus maximowiczii Rupr.

"(No. 1.)"

34803. Prunus prostrata Labill. **Bush cherry.**

"(No. 2.)"

34804. Tamarix pentandra Pallas. **Tamarisk.**

"(No. 4.)"

Distribution.—A shrub or small tree with flowers ranging from rose color to white, found on the low banks of streams from southern Russia and Asia Minor eastward to Turkestan and Persia.

34784 to 34805—Continued.

34805. ULMUS GLABRA SUBEROSA (Moench) Guerke.

"No. 3, *Forma turkestanica* Regel."

Distribution.—A form of *Ulmus glabra* having winged branches, found in southern Europe.

34806 and 34807.

From Canadon de las Vacas, Santa Cruz, Argentina. Presented by Mr. H. T. Reynard. Received January 7, 1913.

34806. BROMUS UNIOLOIDES (Willd.) H. B. K.

See S. P. I. No. 31896 for previous introduction.

34807. POA PALLENS Poir.

Distribution.—A grass resembling Kentucky bluegrass found in the vicinity of Buenos Aires, in Argentina.

34809. CASSIA OBOVATA Colladon.

From South Africa. Presented by Mr. J. Burtt Davy, government agrostologist and botanist, Union of South Africa, Department of Agriculture, Pretoria. Received January 20, 1913.

"Seeds from the southwestern Transvaal and Bechuanaland. The root is supposed to possess medicinal virtues and the leaves are said to be used in tropical Africa as a substitute for and adulterant of commercial senna. I have no personal experience of its merits. The plant prefers a sandy soil and grows in a region of summer rain with a 15 to 20 inch rainfall." (*Davy.*)

Distribution.—A partly woody perennial found in Upper Guinea and Lower Guinea and in Abyssinia and Egypt, in Africa, and from Arabia eastward to the western part of India, in southern Asia.

34810. CASSIA OCCIDENTALIS L.

Presented by Mr. Walter W. Charter, Director of Agriculture, Quelimane, Portuguese East Africa. Received January 22, 1913.

34811 to 34816.

From Tokyo, Japan. Presented by the Tokyo Plant, Seed, and Implement Co. Received January 6, 1913.

34811. VIGNA SINENSIS (Torner) Savi. **Cowpea.**

"*Kintoki.*"

34812 TO 34816. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. **Adzuki bean.**

34812. "*Muroran.*"

34813. "*Shiro-wase.*"

34814. "*Aka-wase.*"

34815. "*Dainagon.*"

34816. "*Kuro-wase.*"

"In order to make the bean meal, the bean is first boiled or steamed. The outer skin then is easily separated by sieving through meshes or by press. Water being then taken off or evaporated from the product, bean meal remains, which may be used for making cakes and confections at once, or may be dried for future use." (*T. Watase.*)

34817 and 34818.

From South Africa. Presented by Prof. J. Burtt Davy, government agrostologist and botanist, Union of South Africa, Department of Agriculture, Pretoria. Received January 15, 1913.

34817. CHAETOCHLOA LINDENBERGIANA (Nees) Hitchc.
(*Panicum lindenbergianum* Nees, Flor. Afr. Austral., p. 47, 1841.)
(*Setaria lindenbergiana* (Nees) Stapf, Flora Capensis, vol. 7, p. 422, 1899.)

Seeds of this South African grass were received under the name *Setaria lindenbergiana* Stapf. The generic name Chaetochloa is now used for this genus. *Chaetochloa lindenbergiana* seems never to have been published, and it is necessary to adopt it here. (*A. S. Hitchcock.*)

Distribution.—A perennial grass found in tropical East Africa and southward to the Cape.

34818. ERAGROSTIS SUPERBA Peyritsch.

"This is one of our best native pasture grasses on the high veld and extends also to the bush veld, its range being from about 3,500 feet (or lower) to 5,500 feet or more. It is common in sandy soils in British Bechuanaland, where the rainfall is perhaps not more than 10 inches, coming in summer." (*Davy.*)

Distribution.—A perennial grass found in Portuguese West Africa and southward to the Cape.

34819. ELICHRYSUM ORIENTALE (L.) Gaertn. Immortelle.

From Toulon, France. Presented by Mr. M. F. Mansfield, consular agent, through the American consul general at Marseille. Received November 25, 1913.

"The choice of soil is very important. Rocky or sandy soils with southern exposure are best adapted for this purpose. In rich, deep, cold soils the immortelle is killed by the first frosts.

"After the soil has been broken and well prepared, the ground is laid out in rows 40 to 50 centimeters apart (15.74 to 19.68 inches); in these rows the young plants are set out at a distance of 30 to 35 centimeters (11.81 to 13.77 inches) from each other. Care should be taken to heap up the soil about the roots. These early plants should be watered by means of a sprinkler. If it should rain after the planting, sprinkling would be unnecessary. It would be advisable during the first four or five days to protect these young plants from the hot rays of the sun. When they have begun to grow, they should be exposed to the full rays of the sun, and during the winter protected from the cold, for the immortelle is very sensitive to frost. It is for this reason that the immortelle is cultivated at Ollioules and Bandol only in soils well exposed to the sun and upon the southern slopes.

"Cultivation of the immortelle is exceedingly simple. It consists in spading lightly the ground about the plant and applying a suitable fertilizer. The ground should be spaded whenever weeds spring up around the plants. As for the fertilizer, it consists of oil cakes and stable manure, which is placed about the roots of the young plants when they have attained a certain development. The fertilizer should be renewed in this region every year, in October or November.

"The immortelle commences to yield after the second year and continues to bloom even more than 20 years. In this region the flower is gathered in June or July. At the moment the flowers commence to open and show a small red point in the center and are of a beautiful golden yellow, they should be gathered. When the flowers have arrived at this degree of maturity, they should be immediately gathered, for they open very rapidly and lose their commercial value. After the flowers have been gathered, they are exposed to the sun for drying. When dry, they are made into bouquets and hung up in dry rooms, out of reach of mice." (*Mansfield.*)

Distribution.—An herbaceous perennial found in Asia Minor and cultivated generally in the countries of southern Europe bordering on the Mediterranean Sea.

34820 and 34821.

From St. Petersburg, Russia. Presented by Mr. Slobool Schicoff, Director of Agriculture. Received January 20, 1913.

34820. NICOTIANA RUSTICA L. **Tobacco.**

34821. NICOTIANA TABACUM L. **Tobacco.**

34822. MELILOTUS OFFICINALIS (L.) Desr. Yellow sweet clover.

From India. Presented by Gen. F. Booth Tucker, the Salvation Army, The Mall, Simla. Received January 8, 1913.

"This seed was received as *Medicago falcata.*" (*H. N. Vinall.*)

34823. CHENOPODIUM QUINOA Willd. Quinoa.

From Puno, Peru. Presented by Mr. C. Bues. Received December 28, 1912.

"Seed of a Peruvian grain. It is exceedingly nourishing and might interest breakfast-food manufacturers. Grows on semiarid land; is sown in rows and gives big crops. Adaptable strains might be selected. Grows at 10,000 to 11,000 feet altitude and even higher. Sown near the beginning of the rainy season. The plant resembles a weed very common in the States and should not be pulled as a weed." (*Bues.*)

34824 and 34825.

From Buitenzorg, Java. Presented by Mr. T. E. van der Stok, through Mr. C. V. Piper, of the Bureau of Plant Industry. Received January 25, 1913.

34824. CANAVALI ENSIFORME (L.) DC. **Jack bean.**

"White bean."

See S. P. I. No. 32647 for previous introduction

34825. CANAVALI GLADIATUM (Jacq.) DC. **Sword bean.**

"Gray bean."

See S. P. I. No. 32646 for previous introduction.

34826 and 34827. GOSSYPIUM HIRSUTUM L. Cotton.

From Zomba, Nyasaland Protectorate. Presented by Mr. E. W. Davy, for the Director of Agriculture. Received January 27, 1913.

34826.

"(No. 16.)"

34827.

"(No. 57.)"

34828. ANANAS SATIVUS Schult. f. Pineapple.

From Ibadan, southern Nigeria. Presented by Mr. Frank Evans, Department of Agriculture. Received January 25, 1913.

Seeds.

34829. PERILLA NANKINENSIS (Lour.) Decaisne.

(*Perilla arguta* Benth.)

From Hankow, China. Presented by Mr. J. Paul Jameson, American vice consul general. Received January 27, 1913.

"*Su tze.*"

34830. CITRUS LIMONIA × GRANDIS.

From Algiers, Algeria. Presented by Dr. L. Trabut. Received January 28, 1913.

34831. PERSEA AMERICANA Miller. Avocado.

(*Persea gratissima* Gaertn. f.)

From Rome, Italy. Presented by Dr. Gustav Eisen, California Academy of Sciences, San Francisco, Cal. Received January 30, 1913.

"Cuttings were procured from Pincio." (*Eisen.*)

See S. P. I. No. 34698 for previous introduction.

34832 and 34833. Palm.

From Port Louis, Mauritius. Presented by Mr. G. Regnard. Received January 20, 1913.

34832. DECKENIA NOBILIS Wendland.

See S. P. I. No. 34079 for previous introduction.

34833. ROSCHERIA MELANOCHOETES Wendland.

See S. P. I. No. 33347 for previous introduction.

34834. ROSA LESCHENAULTIANA Red. and Thor. Rose.

From Kew, England. Presented by Sir David Prain, director, Royal Botanic Gardens. Received January 31, 1913.

Cuttings.

34835. FERONIELLA OBLATA Swingle.

From Saigon, Cochin China. Presented by Mr. P. Morange, Director of Agriculture. Received January 29, 1913.

See S. P. I. Nos. 29341 and 34636 and Inventory 31, p. 84, for previous introductions and descriptions.

34836. ILEX CORALLINA Franchet. Holly.

From Orleans, France. Presented by Barbier & Cie., at the request of Vilmorin-Andrieux & Cie., Paris, France. Received February 19, 1913.

"Among the new hollies recently introduced from China this is one of the most remarkable; it is entirely different from all other hollies existing in our collections in its peculiar habit. According to Franchet it reaches a height of from 3 to 4 meters. It is a bushy shrub, smooth in all parts, with lenticular bark and glutinous buds. Its branches, long and slender, bend gracefully without being pendent; being very flexible, they are waved by the slightest breeze. Its leaves are very long, from 4 to 5 inches, and from 1¼ to 1½ inches in width, are thin and rapidly become coriaceous; they are ovate lanceolate, finely denticulate, brilliant deep green above and pale green beneath. The fruits are numerous, small, coral red, whence comes the specific name. This shrub, which is so graceful, has none of the rigidity of our hollies; it grows rapidly and does not seem dependent on the nature of the soil. It has stood our winters without injury, even as young seedlings; perhaps it is rash to present it as hardy for the north of France, but I am sure that for the climate of central France it will be an open-air shrub. It will be very decorative for the cliffs of wild gardens, in large rockeries, just as it will have its place in massed effects with other species. We have grown this interesting novelty from seeds sent by Mr. E. H. Wilson, which were collected in the thickets near Mupin, central China, at altitudes of from 1,500 to 1,800 meters. He had already met this species the preceding year in the ravines around Ichang." (*Léon Chenault, Revue Horticole, November 16, 1912.*)

34837 to 34850.

From Australia. Presented by Lieut. Col. J. W. B. Field, Castlemaine, Victoria, Australia. Received January 8, 1913.

Seeds of the following:

34837. ACACIA ELATA Cunningham. **Cedar wattle.**

See S. P. I. No. 1800 for previous introduction.

Distribution.—A handsome tree, often 60 feet high, found in shaded ravines in the Blue Mountains in New South Wales, Australia.

34838. ACACIA SPECTABILIS Cunningham. **Mudgee wattle.**

See S. P. I. No. 30783 for previous introduction.

34839. BORONIA PINNATA Smith.

Distribution.—A smooth shrub about 2 feet in height bearing wandlike branches with pinnate leaves and rose-colored flowers, which have the odor of the hawthorn. Found in New South Wales and Victoria, Australia, and in Tasmania.

34840. BRACHYCHITON ACERIFOLIUM Mueller. **Flame tree.**
(*Sterculia acerifolia* Cunn.)

See S. P. I. No. 4607 for previous introduction.

Distribution.—A large timber tree with racemes of rich red flowers. Found in the valleys of rivers in New South Wales in Australia.

34841. DILLWYNIA ERICIFOLIA Smith.

Distribution.—An erect heathlike shrub found in wet, sandy places along streams in Queensland, New South Wales, and Victoria, Australia, and in the northern part of Tasmania.

34842. KENNEDYA RUBICUNDA (Schneevoogt) Ventenat.

See S. P. I. No. 19792 for previous introduction.

Distribution.—A perennial climbing vine with drooping racemes of dark-red flowers 1 to 2 inches long. Found in Queensland, New South Wales, and Victoria, Australia.

34843. LAGUNARIA PATERSONII (Andrews) Don. **Queensland pyramid tree.**

"An Australian tree, with white, close-grained, easily worked wood used for building, which grows to a height of 40 to 60 feet and to a diameter of 1½ to 2½ feet. The bark furnishes a very beautiful fiber on maceration." (*Maiden, Useful Native Plants of Australia.*)

Distribution.—A tree with large, pale-red, nearly white, flowers, growing on Norfolk Island, east of Australia, and in Queensland.

34844. LEPTOSPERMUM FLAVESCENS Smith. **Tantoon.**

Distribution.—A tall shrub found along the banks of streams in Queensland, New South Wales, and Victoria, Australia, and in Tasmania.

34837 to 34850—Continued.

34845. PALLASIA CAPENSIS Christm.
(*Calodendrum capensis* Thunb.)

See S. P. I. No. 31857 for previous introduction.

34846. PITHECOLOBIUM PRUINOSUM Benth.

See S. P. I. No. 7212 for previous introduction.

Distribution.—A tree with the flowers in globular umbels found along streams in Queensland and New South Wales, Australia.

34847. PITTOSPORUM REVOLUTUM Dryander.

Distribution.—A tall shrub with tomentose shoots and leaves. Found on ridges and in river valleys in Queensland, New South Wales. and Victoria, Australia.

34848. POLYSCIAS ELEGANS (Moore and Mueller) Harms.
(*Panax elegans* Moore and Mueller.)

Distribution.—A large and handsome tree found along rivers and on shores of Queensland and New South Wales, Australia.

34849. CORDYLINE TERMINALIS Kunth. **Palm lily.**

Distribution.—A shrubby plant found in the tropical part of India and eastward through the Malay Archipelago to Australia.

34850. CORDYLINE BAUERI Hook. f.

Distribution.—A treelike plant often 20 feet high found on Norfolk Island, east of Australia.

34851. PRUNUS BRIGANTINA Villars.

From Nice, France. Presented by Dr. F. Mader. Received January 31, 1913.

"Seeds of *Prunus brigantina* (S. P. I. No. 31954) I sent you from Tenda. Unfortunately last year I was unable to procure, in the eastern Maritime Alps, fruits for making an exact comparison, and the question whether there are two varieties or even species going under that name can only be solved next autumn. However, I send you now some seeds of the western form, exceedingly common near the springs of the Var stream, etc. If the differences quoted prove to be constant and important, this, and not the eastern form from Tenda, must be considered as the true typical *Prunus brigantina* (or *prunier des Alpes* of French foresters). I hope you will now have the two plants, whether they be different or not." (*Mader.*)

34852. TRIFOLIUM PRATENSE L. **Red clover.**

From Amsterdam, Holland. Presented by Prof. Hugo de Vries, through Mr. Walter T. Swingle, of the Bureau of Plant Industry. Received January 29, 1913.

"Seeds of the 5-leaved clover." (*De Vries.*)

34853. LEPTOSPERMUM SCOPARIUM Forster. **Nicholls's manuka.**

From Long Rock, Cornwall, England. Presented by Rev. A. T. Boscawen. Received January 31, 1913.

Nichollsii. "The history of this species has been given by Mr. M. L. Roberts, of Christchurch, New Zealand. During the summer of 1905 Mr. M. W. Nicholls, of Belfast, New Zealand, visited the establishment of Nairn & Son, wearing in his buttonhole flowers of this shrub. These horticulturists, who saw at the first glance that it was a new plant, asked for information concerning it and inquired as to the means of procuring it. The only information that Mr. Nicholls gave them was that the plant originated in the region between Chaney's Corner and the sea. Messrs. Nairn requested cuttings, which Mr. Nicholl furnished them. These cuttings did not succeed very well at first, because they were too woody, and only one or two small plants were obtained. One shrub, however, bore seeds. On sowing these a hundred plants were produced, which, except seven, presented the same characters as the type and later yielded for the most part white flowers. But the exceptions have soft reddish foliage of a different appearance. When they flowered it was found that they had red flowers. The best of these was named *Nichollsii*, and it is this which is now received. A large number of specimens have been sent to Europe, with great success, and have succeeded well there. This new variety forms a valuable addition to horticulture. They are very much sought, however, for growing in gardens in the citrus regions and they are cultivated in the open air like *Leptospermum scoparium*, that is to say, in ground not calcareous, but in well-drained, airy locations. In less mild climates they are cultivated in the cool house. They are easily propagated by cuttings." (*Revue Horticole, 1912, p. 577.*)

34854. XANTHOSOMA SAGITTAEFOLIUM (L.) Schott. Yautia.

From Basse Terre, Guadeloupe. Presented by the American consul. Received February 3, 1913.

"*Malanga coloré*. Colored or wine eddo. The roots of this eddo are much esteemed. They are smaller and more nearly round than the white eddo. The color inside is pale yellow. They are mealy and dry when cooked. The young leaves of the plant are selected as the best for making 'calalou.' " (*F. T. F. Dumont.*)

Tubers.

34855 and 34856. PERSEA AMERICANA Miller. Avocado.

(*Persea gratissima* Gaertn. f.)

From Mexico. Collected by Mr. G. N. Collins, of the Bureau of Plant Industry. Received February 4, 1913.

Scions of the following; quoted notes by Mr. Collins:

34855.

"From San Pablo, Campeche, January 20, 1913. A thin-skinned fruit with small seeds; reputed to be of very superior quality."

34856.

"From a tree said to produce the finest and largest fruits in Merida, a place noted for its fine avocados."

34859. VIGNA SINENSIS (Torner) Savi. Cowpea.

From San Salvador, Salvador. Presented by Mr. Thomas Hinckley, American consul general, who procured them through the Sociedad Nacional de Agricultura, Ganadería é Industrias of Salvador. This seed was procured at the request of Mr. R. T. Ruiz. Received January 30, 1913.

"A black pole bean so prolific as to defy comparison. It is found in its best state in the department of Chalatenango. The best trait of this bean beside its splendid flavor is the fact that it is sown in the same hill with the Indian corn at the same time the latter is being sown and it matures with the corn, the stalk of the latter being its natural support." (*Ruiz.*)

34860. CITRUS *sinensis* (L.) Osbeck. **Orange.**

From Florida. Presented by Mr. Goldsmith H. Williams, United Fruit Co., New York. Received February 5, 1913.

"*Melitensis sulcata*, navel orange, which I once had in Florida. It was sent to Mr. Henry G. Hubbard by Mr. William Saunders, from Washington. This variety of the navel is more prolific than the so-called Washington navel and is otherwise a little superior, in my estimation." (*Williams.*)

Cuttings.

34861. DIOSCOREA sp. **Yam.**

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received January 30, 1913.

"A superior sort of yam (*Dioscorea* sp.), P. I. No. 2394. I think we have never sent you this variety heretofore. It has a very distinct habit, as to the rhizomes, from other yams, somewhat resembling the old West Indian '*yampee*' in that respect." (*Barrett.*)

34862. CUCURBITA MAXIMA Duch. **Pumpkin.**

From El Rancho, Guatemala. Presented by Mr. E. E. Knight. Received January 7, 1913.

34863. MEDICAGO SATIVA L. **Alfalfa.**

From Paris, France. Presented by Mr. Frank H. Mason, American consul general. Received February 5, 1913.

"This seed is said to be a very hardy variety, well adapted to a dry climate and a sandy soil. It should be sown in the usual manner, about 20 to 25 pounds to the acre, preferably when spring is well advanced." (*Mason.*)

34864. CHAENOMELES JAPONICA (Thunb.) Lindl. **Japanese quince.**
(*Pyrus japonica* Thunb.)

From Nancy, France. Purchased from Lemoine & Sons. Received February 7, 1913.

"*Incendie.* Very beautiful, with double perfect flowers; petals round, perfectly imbricated; live, fiery scarlet in color." (*Revue Horticole.*)

Plants.

34865 and 34866.

From Argentina. Presented by Mr. W. F. Wight, of the Bureau of Plant Industry. Received February 7, 1913.

34865. PRUNUS ARMENIACA L. **Apricot.**

"These seeds are from a seedling tree in a garden between San Juan and Alta Sierra, Province of San Juan, Argentina. The fruit was fair sized and of excellent quality. Unfortunately no more remained on the tree." (*Wight.*)

34866. SOLANUM sp.

"These tubers came from near Guatrache, Argentina, where there has been practically no rain since last May. It is said the Indians eat them raw, and while the taste is agreeable enough at first, I can't say that the taste later is particularly good." (*Wight.*)

Tubers.

34872 and 34873.

From Australia. Presented by Mr. James Pink, Wellington Point, near Brisbane, Queensland. Received February 10, 1913.

Seeds of the following; quoted notes by Mr. Pink:

34872. GREVILLEA BANKSII R. Brown. **Kurrajong.**

"One of the most beautiful flowering shrubs of Australia. Evergreen shrub or tree, 12 to 20 feet, with red flowers."

34873. STERCULIA QUADRIFIDA R. Brown.

"An umbrageous tree producing its seeds in large pods, which when ripe are of a brilliant crimson color, containing black seeds, which are sometimes eaten by children. When ripe the pods burst open and their bright crimson color, contrasting with the black seeds, gives the tree a very handsome and striking appearance."

Distribution.—Along streams and near the coast in northern Australia and Queensland.

34874. ZIZIPHUS JUJUBA Miller. Jujube.

(*Ziziphus sativa* Gaertn.)

From China. Presented by Dr. N. S. Hopkins, Methodist Hospital, Peking. Received February 10, 1913.

34875. CEIBA PENTANDRA (L.) Gaertn. Kapok.

(*Eriodendron anfractuosum* DC.)

From Guam. Presented by Mr. J. B. Thompson, special agent in charge, Guam Agricultural Experiment Station, through Mr. Lyster H. Dewey, of the Bureau of Plant Industry. Received February 8, 1913.

34876. PIRATINERA ALICASTRUM (Swartz) Baillon. Bread-nut tree.

(*Brosimum alicastrum* Swartz.)

From Merida, Mexico. Collected by Mr. G. N. Collins, of the Bureau of Plant Industry. Received February 12, 1913.

"*Ramon.* Seeds from the hospital grounds. A small tree common in northern Yucatan, the branches of which are the principal fodder during the dry season. All kinds of animals seem to eat the leaves freely. The plant is strictly tropical, and I do not know that it could be grown anywhere in the United States, but it was so extensively used and seemed to afford such excellent forage in the dry regions of Merida that it might be worth while to give it a trial." (*Collins.*)

34877 to 34884.

From Villa Rica, Paraguay. Presented by Señor Don Carlos Mahaux. Received February 4, 1913.

34877. ANNONA sp.

34878. ARISTOCLESIA ESCULENTA (Arruda) Stuntz. **Pacuri.**
(*Platonia insignis* Mart.)

"A very large, beautiful tree with hard wood. The leaves are coriaceous and elegantly marked with numerous parallel veins; the flowers are large, of a light-red color, solitary at the ends of the small branches. The fruit, called *pacoury uva* in Brazil, is said to be very sweet and delicious, whilst the seeds have the flavor of almonds." (*Lindley, Treasury of Botany.*)

34879. CAMPOMANESIA sp.

34877 to 34884—Continued.

34880. Eugenia uniflora L. **Pitanga.**

"A small shrubby tree of Brazil, bearing small, round, and ribbed fruit about 1 inch in diameter, rather flattened at the ends, and of a bright-red waxy appearance. These suggest small tomatoes at a distance; the pulp is edible, but to most people is too acid and perfumed to be agreeable. It is said to make good jelly, being also used in preserves. The tree thrives best at medium elevations, 1,500 to 3,000 feet. Propagated by seed." (*Macmillan, Handbook of Tropical Gardening.*)

34881. Garcinia sp.

34882. Genipa americana L. **Genipap.**

"The fruit is succulent, as large as an orange, with rather thick rind, crowned by the calyx, and tapering at each end. It is known as the genipap fruit or, in Venezuela, as the marmalade box." (*Masters, in Lindley's Treasury of Botany.*)

Distribution.—A tree found in the northern part of South America from the province of Minas Geraes, in Brazil, northward to Venezuela, and in the West Indies.

34883. Stevia rebaudiana (Bertoni) Hemsley.

"This Paraguayan herb is of peculiar interest because of the very large saccharine content of the leaves. A tiny fragment placed on the tongue seems as sweet as a lump of sugar of similar size. Several years ago the discovery that this plant, then called Eupatorium, contained a substance many times sweeter than sugar, was heralded by the press and excited the keen interest of sugar planters all over the world. The substance turned out to be a glycerin and the anxiety of sugar interests subsided." (*David Fairchild.*)

Distribution.—An herbaceous perennial belonging to the aster family. Found in the woods along the Monday River, in the southeastern part of Paraguay.

34884. (Undetermined.)

34885. Haemanthus eetveldeanus Wildem. and Th. Dur.

From Brussels, Belgium. Presented by the Ministère des Colonies. Received January 23, 1913.

Distribution.—A bulbous perennial bearing large rose-colored flowers in umbels. Found in damp places in the Kongo.

Bulblets.

34888 to 34902.

From Merida, Mexico. Procured by Mr. G. N. Collins, of the Bureau of Plant Industry, in the market at this place. Received February 14, 1913.

34888 and 34889. Phaseolus coccineus L. **Bean.**

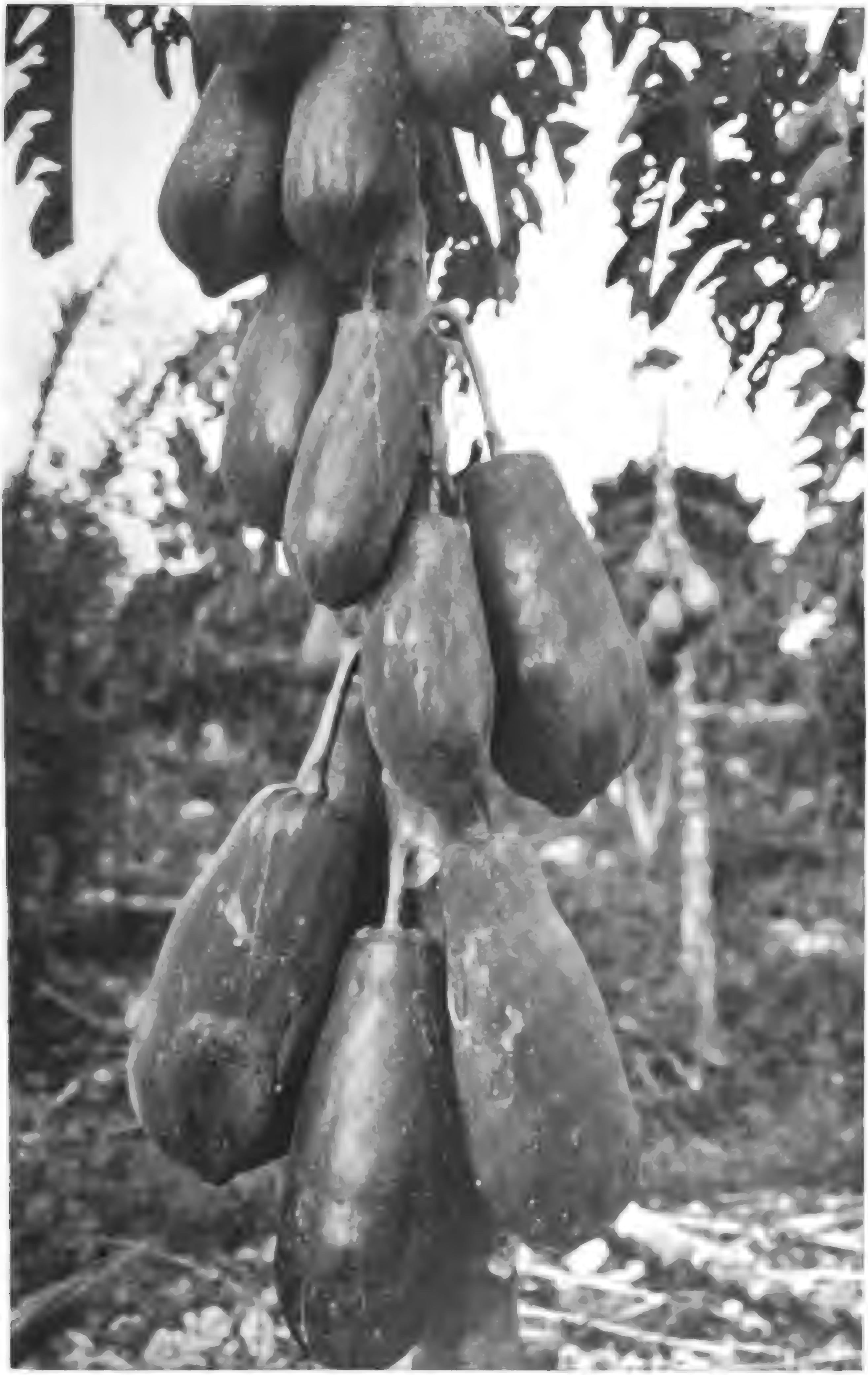
34888. *De Santa Cruz.*
34889. *Santa Cruz.*

34890 to 34900. Phaseolus vulgaris L. **Bean.**

34890. *Sa Ma.*
34891. *Fijot San Miguel importo.*
34892. *Ibes colorado del pais.*
34893. *Colorado del pais.*
34894. *Ani beno.*
34895. *Ibes*, or *Hibes.*
34896. *Vera Cruzena.*
34897. *Schol.*
34898. *Chol y bul.*
34899. *Honjo*, or *horilla.*
34900. *Gol bio.*

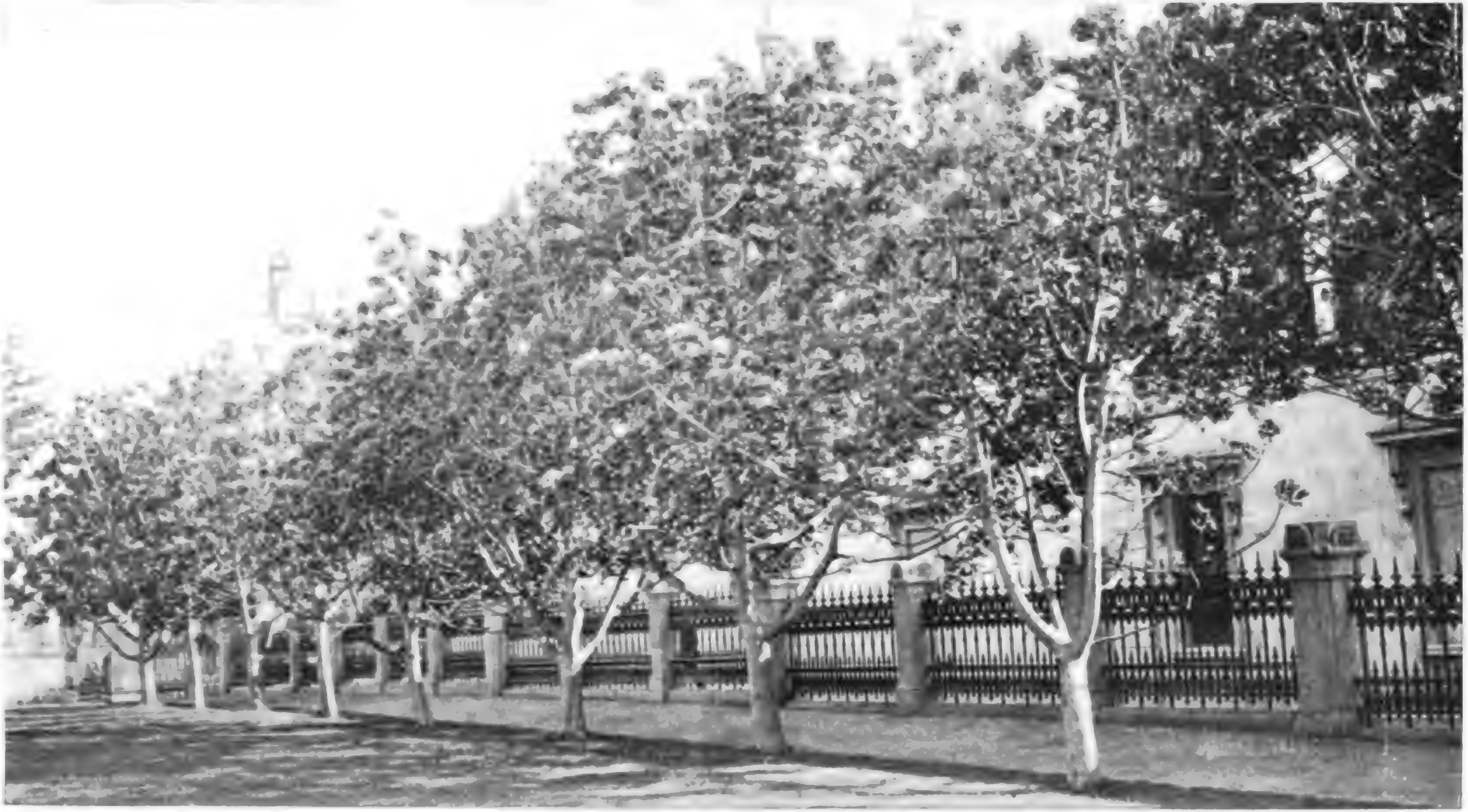
34901 and 34902. Vigna sinensis (Torner) Savi.

34901. *Le Carita.*
34902. *Espelon del pais.*



A LARGE-FRUITED, FINE-FLAVORED PAPAYA (CARICA PAPAYA L.) FROM YUCATAN. (S. P. I. No. 34903.)

A low-growing variety, found by G. N. Collins near Merida, producing from 15 to 20 of these enormous fruits when only 7 feet high. They have a fine flavor, although often 19 inches long. (Photographed by Mr. Collins in a Chinese garden near Merida; Crop Acclimatization No. 1945.)



AN EVERGREEN SHADE TREE (HARPEPHYLLUM CAFFRUM BERNH.) FOR WINDY LOCATIONS IN FLORIDA. (S. P. I. No. 34943.)

In the public square around the Government building, Cape Town, stands this row of Kafir plum trees. According to the veteran botanist Prof. MacOwan, it is the best tree yet discovered to stand the continual whipping by the wind from off Table Mountain. It grows well in Florida. (Photographed by David Fairchild, March, 1903; No. 094.)

34903. CARICA PAPAYA L. **Papaya.**

From Merida, Mexico. Presented by Mr. G. N. Collins, of the Bureau of Plant Industry, who procured them through Señor Arturo Zavala from the Chinese Gardens. Received February 5, 1913.

"Seeds from a very large and fine-flavored fruit. The trees produce when small and are very prolific; many trees not over 7 feet in height are bearing from 15 to 20 enormous fruits and, of course, innumerable smaller ones. The Chinese gardeners about Merida are securing most remarkable results with this fruit." (*Collins.*)

For an illustration of the fruit of this papaya, see Plate I.

34904. PERSEA AMERICANA Miller. **Avocado.**

(*Persea gratissima* Gaertn. f.)

From Merida, Mexico. Presented by Mr. G. N. Collins, of the Bureau of Plant Industry, who secured them through Señor Arturo Zavala, the alcalde of Merida. Received February 18, 1913.

"Cuttings from a very famous tree at some distance from the town." (*Collins.*)

34907. MANGIFERA sp. **Mango.**

From San Jose, Costa Rica. Presented by Mr. J. E. van der Laat, director, Department of Agriculture, at the request of Mr. Carlos Wercklé, of the Muséo Nacional. Received February 20, 1913.

"*Cazique.* From Coyolar." (*Van der Laat.*)

Cuttings.

34911. HOLCUS SORGHUM L. **Kafir.**

(*Sorghum vulgare* Pers.)

From Chillicothe, Tex. Grown from selected seed. Received February 26, 1913.

"(F. C. I. 4201.) A dwarf kafir, selected from S. P. I. No. 22326 by Mr. A. B. Conner, Chillicothe, Tex., November, 1910. This selection closely resembles Blackhull kafir, but has grains that seem somewhat larger and whiter, making it appear similar to feterita. Several years' tests at Chillicothe, Tex., have demonstrated the excellent quality of this selection, especially in regard to drought resistance." (*H. N. Vinall.*)

34912. ASPARAGUS AFRICANUS Lam. **Asparagus.**

From Cedara, Natal, Union of South Africa. Presented by Mr. E. Harrison, principal, School of Agriculture. Received February 25, 1913.

34913. (Undetermined.)

From Angola, Africa. Presented by Mr. Merlin W. Ennis, Boston, Mass. Received February 25, 1913.

"*Olanamba.* The wild ones are found on stony mountain slopes where the soil is sandy. This cultivated root seems to thrive on any soil and will bear well on soil too poor and sandy for potatoes. The natives eat these roots raw. We bake them, use them in soup, etc." (*Ennis.*)

Roots.

34914. SWIETENIA MACROPHYLLA King. **Mahogany.**

From Caracas, Venezuela. Presented by Mr. H. Pittier, of the Bureau of Plant Industry. Received March 7, 1913.

"Seeds of a mahogany tree which I took at first for *Swietenia mahagoni.* Later I got flowers and I have now doubts as to whether it is really that species. If you have received the seeds, which should be tried in southernmost Florida or California, or better in Porto Rico, you may just as well refer them to my No. 5789." (*Pittier.*)

34915. LICANIA PLATYPUS (Hemsl.) Fritsch. **Sansapote.**

(*Moquilea platypus* Hemsl.)

From San Jose, Costa Rica. Presented by the Department of Agriculture. Received January 29, 1913.

"Belonging to the family Rosaceæ. It grows in the form of a tree, rather scarce on the Pacific coast of Costa Rica, but more common in other parts of Central America, where it is sometimes known as *Sunza*. The fruit is large, somewhat oblong, with a reddish gray skin; the flesh yellowish, fibrous, and rather sweet, inclosing an oval, depressed seed." (*W. E. Safford.*)

See S. P. I. No. 31686 for previous introduction.

Roots.

34916 to 34919. KERSTINGIELLA GEOCARPA Harms. **Kandela.**

From Togoland, Africa. Presented by Dr. A. Engler, director, Königliches Botanisches Museum, Dahlem, Berlin, Germany. Received March 20, 1913.

"This remarkable new edible bean was first described by Dr. H. Harms, in 1909, from specimens forwarded by Dr. Kersting, of Sokode, Togoland. Since then it has been in cultivation and under observation in the botanic gardens at Dahlem and Jena, and last year Dr. Harms published a short article in which he summarized briefly what was then known about this ground bean, adding some valuable information concerning the conditions of its cultivation.

"'Two years ago I called attention to an important botanical discovery by Dr. Kersting, who, in the northern territory of Sokode-Basari, Togoland, came across an especially interesting new kind of bean which matures its pods below instead of above ground. The well-known groundnut (*Arachis hypogaea*) and the peanut (*Voandzeia subterranea*) are similar instances. Kersting found that the natives of Togoland cultivated the bean, which they called *kandela*, in three varieties distinguished by their colors. I described this bean, which is not known in the wild state, as *Kerstingiella geocarpa*, the type of a new genus of Leguminosæ.

"'In July, 1910, Auguste Chevalier, the indefatigable African explorer, reported the existence in Dahomey of a plant which, to judge from the description, was very similar to, if not identical with, Kersting's bean. He named it *Voandzeia poissoni*, a new species of the genus of the peanut, giving the Dahomey name as "*Doi.*" (Compt. Rend., vol. 151, p. 84.) The beans are sold in the market of Abomey by the natives, who grow them largely. There were also here colored varieties (white, black, and mottled). An account may be found in Quinzaine Coloniale, 1910, No. 16, page 590. Chevalier's description suggested at once the identity of the Dahomey and the Togo bean. M. Chevalier was, on his return from Africa, good enough to send me a specimen of his Dahomey plant whilst I supplied him with material from Togoland, and our comparisons proved that the two beans were actually identical or, in other words, that the Togo bean extended into Dahomey, and M. Chevalier has already stated (Compt. Rend., vol. 151, p. 1374) that he, too, considered his species as identical with *Kerstingiella geocarpa*. He gives an important account of its distribution in Dahomey, quoting various vernacular names. The species is also said to occur in British Nigeria, but up to the present I have seen no specimens from there. In Togo, as well as in Dahomey, the plant is known only in the cultivated state, which renders Kersting's and Chevalier's discoveries the more remarkable.

"'Chevalier gives analyses (Quinzaine Coloniale, 1910, No. 16, p. 1375) which show that the nutritive value of the beans is very considerable. They are said to equal the richest peanuts (*Voandzeia subterranea*) in nutritious matter, whilst they have at the same time a more pleasant taste, particularly for Europeans, recalling that of the finest varieties of beans. The yield, owing to the smallness of the seed (8 to 10 mm.

by 6 to 7 mm.), is not large. In Dahomey, according to the French explorer, the women are forbidden to eat the beans.

" 'Last year (1910), thanks to the kindness of First Lieut. Haring, of Sokode-Basari (Togo), the botanic garden at Dahlem, near Berlin, received excellent seeds of this remarkable fruit. They germinated well, and numerous plants were raised by Chief Inspector F. Ledien, not a few of them flowering in July and August. A number of seeds were sent to Inspector E. Rettig, of the botanic garden at Jena, and under his careful and intelligent treatment splendid specimens grew up, of which some even set fruit. The unfavorable, cold, and dull summer of 1910, however, prevented their maturation. The flowers are very small and papilionaceous and spring from the creeping stem close to the ground. The flowers of the variety with light or occasionally black-mottled seeds are white, those of the other varieties pale violet.

" 'The Hausas call it *Kouarourou*, according to Chevalier. It is also said to occur in Borgu. It is true at the first glance it might be mistaken for *Voandzeia subterranea*, and Schweinfurth actually suggests that this has been the case with certain writers (Zeitschrift d. Gesellschaft f. Erdkunde, 1910), but the expert will always distinguish them. Habit and leaves are similar and yet distinct, and Voandzeia, so long and well known to us, has above all much larger globose seeds.

" 'Kerstingiella might possibly also be grown with advantage in other parts of our colonies. Moist and hot countries do not suit it; in Togo it occurs according to Kersting in sandy, laterite loam, in a climate of low humidity, with occasional heavy showers, and a shade temperature of 18° to 34° C.' " (*Kew Bulletin, 1912.*)

34916. Black.

34917. Buff.

34918. White, with black eye.

34919. White, with brown eye.

34920. LANSIUM DOMESTICUM Jack. Duku.

From Buitenzorg, Java. Presented by the director, Department of Agriculture. Received March 22, 1913.

For previous introductions see S. P. I. Nos. 24431 and 34074.

34921 to 34923.

From Marseille, France. Presented by Dr. E. Heckel, director, Colonial Museum. Received March 22, 1913.

34921. SOLANUM COMMERSONII Dunal. **Potato.**

34922. SOLANUM COMMERSONII Dunal. **Potato.**

34923. SOLANUM CHACOENSE Bitter. **Potato.**

Distribution.—A tuberous species found in sandy places near the margins of woods in the province of Villeta, in Paraguay.

34927 and 34928.

From Poona, India. Presented by Mr. W. Burns, economic botanist, Agricultural College. Received February 26, 1913.

Roots of the following; quoted notes by Mr. Burns:

34927. ANDROPOGON ODORATUS Lisboa.

"The authors of the Pharmacographia Indica (III, pp. 570 and 571) observe: 'We have distilled the grass and obtained from it an essential oil, having at first an odor recalling that of cassia and rosemary, but afterwards a strong persistent odor of oil of cassia. Messrs. Schimmel & Co. noticed the odor of pine-needle oil in this sample and found the specific gravity to be 0.945.' It grows in the Deccan and some parts of Konkan in more or less mooroomy soil. There is no literature available regarding its culture."

34927 and 34928—Continued.

34928. VETIVERIA ZIZANIOIDES (L.) Nash. **Vetiver.**
(*Andropogon squarrosus* L. f.)

"'The root of *Khas-khas* is extensively made into the aromatic-scented mats [tatties] which are hung in the doorways and kept wet to cool the atmosphere during the hot season. The raw material is exported to Europe, chiefly from Madras ports. Gildemeister and Hoffman (Volatile Oils, p. 289) say "the root is of a reddish color and often contaminated with red sand; a half distilled root is often found in commerce and can be recognized by its light color." It seems more than probable that much of the so-called half-distilled root is in reality the roots that have been used in tatties for a season and are bought back by traders to be exported. The constant application of water and exposure to the fierce sun might easily exhaust a large proportion of the oil and bleach the roots. The roots when distilled with water yield a fragrant oil known in European trade as vetiver, which is used as a perfume and for flavoring sherbet. It commands a high price in Europe, being employed in many favorite scents. It is the most viscid of essential oils, and hence its sparing volatility is taken advantage of in fixing other perfumes. The oil is hardly, if ever, exported from India, European supplies being either locally made from Indian roots or derived from Reunion. According to Piesse the yield is about 10 ounces per hundredweight. Other observers have found it to vary from 0.2 to 3.5 per cent. In medicine the root has been regarded by European physicians as a diaphoretic and as a preservative against cholera (Pereira, Mat. Med., II, pt. 1, p. 132). The grass (leaves, etc.) is suitable for paper making and it is said that 60,000 to 70,000 maunds are annually available in the Hissar district of the Punjab alone. When young the grass affords good fodder.' (*Watt's Commercial Products of India.*)

"It grows on the banks of rivers and marshes throughout the plains and lower hills of India, Burma, and Ceylon, ascending to 4,000 feet. No literature regarding its culture is available."

34931 to 34939.

From Poona, India. Presented by Mr. W. Burns, economic botanist, Agricultural College, through Mr. C. V. Piper, of the Bureau of Plant Industry. Received February 28, 1913.

34931. ALYSICARPUS LONGIFOLIUS (Rottl.) Wight and Arn.

34932. ALYSICARPUS PUBESCENS Law.

34933. ALYSICARPUS RUGOSUS (Willd.) DC.

Related species of the above species of legumes are considered among the best Indian grazing plants.

34934. ANDROPOGON ANNULATUS Forsk.

34935. CHRYSOPOGON MONTANUS Trinius.

34936. INDIGOFERA GLANDULOSA Wendl.

34937. INDIGOFERA LINIFOLIA (L. f.) Retz.

34938. INDIGOFERA TRIFOLIATA Torner.

Distribution.—From the Himalayas, in northern India, where it ascends to an elevation of 4,000 feet, eastward and southward through China and the Malay Archipelago, to northern Australia.

34939. DACTYLOCTENIUM AEGYPTIUM (L.) Willd.
(*Eleusine aegyptiaca* Desf.)

34940. VIGNA SINENSIS (Torner) Savi. **Cowpea.**

From Augusta, Ga. Purchased from the N. L. Willet Seed Co. Received February 27, 1913.

"*Whippoorwill.*"

34941. PISUM SATIVUM L. **Field pea.**

From Madison, Wis. Purchased from the L. L. Olds Seed Co. Received February 26, 1913.

"*Golden vine.*"

34942. OCHNA PULCHRA Hook.

From South Africa. Presented by Mr. J. Burtt Davy, government agrostologist and botanist, Union of South Africa, Department of Agriculture, Pretoria. Received February 18, 1913.

"A small ornamental tree; seeds yield oil. Frostless localities." (*Davy.*)

Distribution.—A shrub or small tree with pendulous racemes of orange-red berries found in the vicinity of Johannesburg, in the Transvaal region of South Africa.

34943. HARPEPHYLLUM CAFFRUM Bernh. **Kafir plum.**

From Cape Town, Union of South Africa. Presented by the chief conservator of forests. Received February 28, 1913.

"One of the prettiest evergreen shade trees to be seen in the gardens of Cape Town. Suitable for very windy situations and forms a very dense shade. The timber is said to resemble mahogany and is used for wagon making. The red, showy drupes have a pleasant acid taste, but little pulp, and are suitable for making preserves. The tree will stand some drought and is suitable for frost-free regions; has done well in California and particularly well in southern Florida, where trees introduced in 1902 are now 20 feet high." (*David Fairchild.*)

For previous introductions and description, see S. P. I. Nos. 9616 and 21706.

For an illustration of the *Harpephyllum caffrum* tree, as grown at Cape Town, Africa, see Plate II.

34944. BASANACANTHA SPINOSA (Jacq.) Schum.
(*Basanacantha armata* Hook. f.)

From San Jose, Costa Rica. Presented by Mr. Ad. Tonduz, botanist, National Museum. Received February 28, 1913.

"An indigenous rubiaceous tree or shrub occurring scattered on the banks of all the rivers, commonly loaded at all times with fruits the size of an apple. I have never seen this fruit soften. It is always hard; nevertheless, it is figured in some lists of edible fruits." (*Tonduz.*)

34948 to 34969. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. **Adzuki bean.**

From Sapporo, Japan. Presented by Mr. Y. Takahashi, botanist and vegetable pathologist, Hokkaido Agricultural Experiment Station. Received March 6, 1913.

Seeds of the following:

34948. (No. 1.) Red.
34949. (No. 2.) Red.
34950. (No. 3.) Red.
34951. (No. 4.) Red.
34952. (No. 5.) Red.
34953. (No. 6.) Yellow.

34948 to 34969—Continued.

34954. (No. 7.) Brown.
34955. (No. 8.) Brown.
34956. (No. 9.) Brown.
34957. (No. 10.) Light green.
34958. (No. 11.) Dark brown.
34959. (No. 12.) Dark brown.
34960. (No. 13.) Black.
34961. (No. 14.) Black.
34962. (No. 15.) Black mottled.
34963. (No. 16.) Red and white.
34964. (No. 17.) Black mottled.
34965. (No. 18.) Gray.
34966. (No. 20.) Yellow and red.
34967. (No. 21.) Red.
34968. (No. 22.) Red.
34969. (No. 23.) Red.

34970 to 34972. DIOSPYROS KAKI L. f. **Persimmon.**

From Okitsu, Japan. Presented by Mr. T. Tanikawa, in charge, Horticultural Experiment Station, Government of Japan. Received March 6, 1913.

Cuttings of the following; quoted notes by Mr. Tanikawa:

34970.

"*Mishirazū* (*Aizū*). Fruit medium size, average weight one-half pound; shape round, flattened, the point sunken, with four shallow furrows; skin smooth, more or less tough; orange yellow in color; bloom white. The flesh is firm, not very juicy; of very good quality when the astringency is removed by processing."

34971.

"*Mishirazū* (*Sakūshū*). Fruit medium large, average weight two-thirds pound; more or less oblate, slightly tapering at the apex; skin thin, smooth, orange-yellow; flesh fine, juicy, of a very good quality when the astringency is removed by artificial processing."

34972.

"*Fuji*, our famous mountain's name. Fruit large, average weight 1 pound or more, more or less conical in form; skin thin, very smooth, bright orange, red, or crimson; flesh fine, tender, very juicy, light yellowish brown, more or less astringent at first, but very sweet when they become soft. This fruit is of very good quality, and suited for dried fruit and for processing."

34973. DIOSPYROS KAKI L. f. **Persimmon.**

From Hiroshima, Japan. Presented by Rev. H. Loomis, American Bible Society, Yokohama. Received March 6, 1913.

"*Giombo*. This is the variety that produces the best dried persimmons in Japan." (*Loomis.*)

34974. CYPHOMANDRA BETACEA (Cav.) Sendt. **Tree tomato.**

From Buenos Aires, Argentina. Presented by Dr. Carlos Thays, director, Jardin Botanico. Received March 10, 1913.

"An evergreen semiwoody shrub, native of Peru. The egg-shaped and smooth-skinned fruit, produced in great abundance and in hanging clusters at the ends of the branches, is in season almost throughout the year, but chiefly from March to May (in Ceylon). At first greenish purple, it changes in ripening to reddish yellow. Some varieties are of a deep-purple color. The subacid succulent fruits are refreshing and agreeable when eaten raw, but their chief use is for stewing; they may also be made into jam or preserves. The tree is a quick grower and commences to bear when two or three years old, remaining productive for several years." (*Macmillan, Handbook of Tropical Gardening.*)

"Mr. L. H. Bailey found that this shrub would bear the second or third year from seed when grown under glass in Michigan, and the experiment is worth repeating." (*Fairchild.*)

34975. ASPARAGUS sp. **Asparagus.**

From La Mortola, Ventimiglia, Italy. Presented by Prof. Alwin Berger, director, Botanic Gardens. Received March 7, 1913.

34976. LANSIUM DOMESTICUM Jack. **Duku.**

From Buitenzorg, Java. Presented by the director, Department of Agriculture. Received March 7, 1913.

For previous introduction, see S. P. I. No. 24431.

34977. SOJA MAX (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

From London, England. Presented by Mr. Stuart R. Cope. Received February 20, 1913.

34978 to 34981.

From San Jose, Costa Rica. Presented by Mr. Ad. Tonduz, botanist, National Museum. Received March 5, 1913.

Quoted notes by Mr. Tonduz.

34978. ABUTILON sp.

"A shrub 1½ to 2 meters high, with heart-shaped leaves and yellow flowers, found in San Jose and Carbrenas."

34979. BOMAREA sp.

"Fruits found in the vicinity of San Jose. An ornamental with edible tubers."

34980. CALYPTRANTHES TONDUZII Donnell Smith.

"A myrtaceous fruit called *Guayabillo*, which yields a hard, fine wood. These trees, scattered throughout the praderas (country covered with meadows), are literally covered with yellow fruits, which have no use except that they may be eaten."

34981. NECTANDRA SANGUINEA Roland.

"Fruits of a large tree, from the banks of the river Virilla, which in the fresh state furnish a passably good reddish color."

34982. COCCOLOBIS sp.

From San Jose, Costa Rica. Presented by Mr. J. E. van der Laat, director, Department of Agriculture. Received February 20, 1913.

"*Jarra.* Fruit tree, hot climate." (*Van der Laat.*)

34983 and 34984. CUCUMIS MELO L. **Muskmelon.**

From Afghanistan. Presented by Mr. Albert C. Jewett, through Mr. Edward J. Norton, American consul, Bombay, India. Received March 7, 1913.

34983 and 34984. "Two varieties of the Kabul melon."

34985 and 34986. HOLCUS SORGHUM L. **Sorghum.**

(*Sorghum vulgare* Pers.)

Received from Mr. H. N. Vinall, of the Bureau of Plant Industry, March 10, 1913.

34985. "McLean sorghum. Received from the Office of Sugar-Plant Investigations. To be grown for the purpose of classification and determination of forage value." (*Vinall.*)

34986. "Colman sorghum. Open-head type. Received from the Office of Sugar-Plant Investigations. To be grown for the purpose of classification and determination of forage value." (*Vinall.*)

34988 to 34990.

From Kew, England. Presented by Sir. David Prain, director, Royal Botanic Gardens. Received February 26, 1913.

Seeds of the following:

34988. ACER HELDREICHII Orphan.

Distribution.—A maple found on the slopes of Mount Parnassus, in Greece.

34989. CARAGANA DECORTICANS Hemsl.

An Afghan shrub or small tree discovered by Dr. Aitchison in the Kurrum Valley.

"The bark is said to be employed by the Afghans in the form of rings to slip over and hold the sheaths of their long knives in position, in lieu of brasswork; the surface takes a good polish, and when new resembles bronzed leather." (*Aitchison.*)

34990. CRATAEGUS PECKII Sarg. **Hawthorn.**

34991. CANAVALI ENSIFORME (L.) DC. **Jack bean.**

From Greenwood, Miss. Purchased from Mr. H. D. Kerr. Received March 8, 1913.

"The jack bean is a native of the West Indies and the adjacent mainland. In Jamaica, whence it first became well known, it is called the horse bean or the overlook bean. The horse bean of Europe is a very different plant. In Antigua it has been called the Babricou bean, and in this country has been designated the Pearson bean, and recently the wonder bean.

"The jack bean is a bushy, semierect annual plant, growing to a height of 2 to 4 feet. Its stems are rather coarse and become woody toward the base. The rather thickish leaves have a decidedly bitter taste. The flowers are purple, at least in all varieties so far introduced. The first blossoms are borne near the base of the stem, so that many of the pods hang low. When mature, the pods are hard and firm, 9 to 14 inches long, each containing 10 to 14 seeds. These are pure white, with a brown hilum. Ordinarily the roots are well tubercled, and the plant will withstand much drought. It is remarkably free from insects and fungous disease and but slightly affected by root-knot." (*C. V. Piper.*)

For further information, see separate from Circular 110 of the Bureau of Plant Industry, entitled "The Jack Bean and the Sword Bean," by C. V. Piper.

34992. ASTRAGALUS FALCATUS Lam.

From Paris, France. Presented by Vilmorin-Andrieux & Cie. Received February 26, 1913.

"This is a perennial, bunching legume, with fair seed habits; somewhat leafy; may be of value as a leguminous hay and forage crop in sections where clover and alfalfa do not succeed. Somewhat drought resistant." (*J. M. Westgate.*)

34993 to 35033.

From Chile. Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received February 27, 1913.

The following material; quoted notes by Mr. Wight:

34993. ZEPHYRANTHES sp.

"(20a.) A bulbous plant with yellow flowers, growing in the sand near the seashore about 6 miles north of Vina del Mar."

Bulbs.

34994. PERSEA AMERICANA Miller. **Avocado.**
(*Persea gratissima* Gaertn. f.)

"(21) *Palta.* The fruits from which these seeds were taken are sold in Valparaiso. They are purple skinned, rather small, and of very fair quality."

34995. ALSTROEMERIA sp.

"(19) Probably tubers of No. 18 (S. P. I. No. 34996), but without flowers; I can not be sure. They were found about 5 miles north of Vina del Mar."

34996. ALSTROEMERIA sp.

"(18) Seeds of a tuberous-rooted plant with attractive pink flowers. Very few seeds were found mature, but Dr. Söhrens promised to send seeds of this later; also, a still more handsome species, with red flowers. The latter I have seen only at 1,200 to 1,500 meters altitude above Santiago. The pink-flowered one occurs above Los Andes, above Santiago, and apparently the same in the hills above Valparaiso, where these seeds were gathered. The tubers of a white-flowered form are said to be edible and are sold in the market at Concepcion."

34997. AMYGDALUS PERSICA NECTARINA Aiton. **Nectarine.**

"(12) Nectarines with yellow flesh are very common in the markets of both Santiago and Valparaiso. These came from Santiago."

34998. CEREUS QUISCO Gay. **Quisco.**

"(17) Seeds of a cactus with reddish fruits, growing on the huge sand dunes about 6 miles north of Vina del Mar."

34999. CEREUS sp.

"(23) Seeds of a cactus gathered in the mountains at about 1,550 meters altitude, near Quebrada San Ramon, above Santiago. January 12, I saw fruits of probably the same species for sale at the railway station Llai Llai as I passed through."

35000. CUCUMIS MELO L. **Muskmelon.**

"(37) A large melon 12 inches or more long and of fair quality."

35001. CUCUMIS MELO L. **Muskmelon.**

"(39) A round melon, very good."

35002. CUCUMIS MELO L. **Muskmelon.**

"(40) Melon shaped like the fruit of an eggplant, but not of very good quality. It is impossible always to be sure of the quality of either fruit or melons, for they are often picked so green that the quality is ruined."

35003. CUCURBITA sp. **Squash.**

"(38) Seeds of a large squash I found in the market."

35004. CYTISUS sp.

"(15) On the hills above Valparaiso in very dry situations; possibly introduced, but growing among other plants certainly native."

34993 to 35033—Continued.

35005. Fragaria vesca L. **Strawberry.**

"(22) Seeds of a wild Chilean strawberry sold in the market at Santiago. They are of very good quality and remarkably large for wild berries, many of them being over an inch long; also much more conical in shape than the wild berry of the eastern United States."

35006. Juglans regia L. **Walnut.**

"(36) Walnuts."

35007. Lathyrus sp.

"(8) San Ramon, above Santiago, at 1,500 meters altitude. Said to have a very handsome flower."

35008. Loasa sp.

"(6) Herbaceous plant with attractive yellow flowers at San Ramon, above Santiago, at 1,500 meters altitude."

35009. Oenothera odorata Jacq. **Evening primrose.**

"(14) On the dry hills above Valparaiso. The flower is yellowish orange, and the species may be useful as an ornamental."

35010. Oenothera mollissima L. **Evening primrose.**

"(16) Flowers similar to No. 14 (S. P. I. No. 35009), but this one grows very near the seashore, almost within reach of the spray."

35011. Opuntia sp. **Prickly pear.**

"(41) Seeds of the tuna cactus, fruits of which are very common both in the market and at the small shops in Valparaiso and Santiago. These came from Valparaiso."

35012 to 35016. Phaseolus vulgaris L. **French bean.**

"All the varieties of beans I could find in Valparaiso."

35012. (31.)
35013. (32.)
35014. (33.)
35015. (34.)
35016. (35.)

35017. Solanum pseudocapsicum L.

"(3) Fruits of Jerusalem cherry, which is fairly common along a roadside just outside Buenos Aires, Argentina."

35018. Pisum sativum L. **Pea.**

"(29) Peas from a market woman, who saves her own seed. She said they were the best kind she knew."

35019. Prunus armeniaca L. **Apricot.**

"(10) Apricot seeds bought in the market at Santiago. The fruit was most excellent, and I am told a surprising number of seedling trees yield very good fruit. Seedling trees of peaches, plums, and apricots are very common.

35020. Prunus sp. **Plum.**

"(11) Seeds of a small yellow plum sold in the Santiago market. Not of excellent quality."

35021. Salvia sp.

"(15a) On the hills above Valparaiso."

35022. Sisyrinchium sp.

"(9) Flowers of this not seen, but it may prove of interest. San Ramon, above Santiago, at 1,500 meters altitude."

34993 to 35033—Continued.

35023. Solanum sp.

"(13) Collected by the side of the Quebrada San Ramon. Very little seed was found and no tubers. It is probable, however, that the species, under other conditions, might produce tubers. Snow falls in winter at this altitude, 1,500 meters, yet the plants evidently pass the winter by thick underground rootstocks."

35024 to 35028. Solanum tuberosum L. **Potato.**

35024. (24) "*Papa amarilla*, with white skin."

35025. (25) "*Papa blanca*."

35026. (26) "*Papa amarilla*, with red skin."

35027 and 35028.

"Potatoes from the market at Santiago. The two numbers are said to come from different localities."

35027. "(27.)" **35028.** "(28.)"

Tubers.

35029 (Undetermined.)

"(4) Seeds of a shrub at Quebrada San Ramon, at 1,500 meters altitude."

35030. (Undetermined.)

"(5.)" See S. P. I. No. 35029 for description.

35031. (Undetermined.)

"(7) A very attractive vine with fairly large flowers. I have never seen it in cultivation. From San Ramon, at 1,500 meters altitude."

35032. Zephyranthes sp.

"(20) Seeds of a bulbous plant with yellow flowers, growing in the sand near the seashore, about 6 miles north of Vina del Mar."

35033. Allium cepa L. **Onion.**

"The kind they grow in Chile."

Bulbs.

35034 to 35037.

From Los Banos, P. I. Presented by Mr. C. F. Baker, University of the Philippines, College of Agriculture. Received February 19, 1913.

35034. Pahudia rhomboidea (Bl.) Prain. **Tindalo.**
(*Afzelia rhomboidea* Vidal.)

See S. P. I. Nos. 31586 and 32283 for previous introductions and description.

35035. Parkia timoriana (DC.) Merrill. **Cupang.**
(*Parkia roxburghii* Don.)

See S. P. I. Nos. 32284 and 34094 for previous introductions and description.

35036 Albizzia acle (Bl.) Merrill. **Acle.**
(*Mimosa acle* Blanco.)

See S. P. I. Nos. 22793 and 32285 for previous introductions and description.

35037. Psychotria luçoniensis (Cham. and Schl.) Vill.
(*Psychotria luzoniensis* Vill.)

"Fine small tree." (*Baker.*)

35039. CYMBOPETALUM PENDULIFLORUM (Dun.) Baillon. **Sacred ear flower.**

From Guatemala, Guatemala. Presented by Mr. George A. Bucklin, American consul general. Received March 13, 1913.

"*Orejuela.*" A very interesting annonaceous plant, the flowers of which when dried were used by the Aztecs to flavor their chocolate, and the identity of which has but recently been discovered by Mr. W. E. Safford, of the Bureau of Plant Industry. For a full account, see the annual report of the Smithsonian Institution for 1910, pages 427 to 431.

35040. BORASSUS FLABELLIFER L. **Palmyra palm.**

From Madras, India. Presented by Mr. H. E. Houghton, superintendent, Agri-Horticultural Society of Madras, through Mr. José de Olivares, American consul. Received March 14, 1913.

"An erect palm, 60 to 70 feet high, with a stout trunk and fan-shaped leaves, indigenous to the dry region of Ceylon, India, and Africa. It is naturally suited to a rather dry climate; is extensively cultivated for the fruit and leaves. The large black fruits are borne in a cluster at the base of the leaves. The nut contains a refreshing sap much relished as a cooling drink. The kernels or young seeds are much used as an article of food, being sold in large quantities in the bazaars during the months of April and May. The sap obtained from the flower spathes is collected in large quantities and either fermented and made into '*toddy*' or '*arrack*' (an intoxicating drink) or boiled down for making sugar or jaggery. The leaf blades are used for making fans, baskets, buckets, etc., while the leafstalks and midribs furnish an excellent brush fiber, which forms an article of export. To obtain the latter, the trees are stripped of all but three leaves once in two years. The trunk yields a hard and most durable timber and the husks are in demand for fuel. Among palms in the East the Palmyra ranks next in importance to the coconut, and the area under cultivation in Ceylon is estimated at approximately 40,000 acres, while that in Tinnevelly is said to be about 60,000 acres. It is propagated from seed, which is sown in situ in holes made in sandy soil. In about 10 years from sowing the palms should be in flower, when they may be used for drawing toddy and making sugar. When grown for fruit, an average return of about 3,500 nuts per acre may be obtained." (*Macmillan, Handbook of Tropical Gardening.*)

Distribution.—A tall palm often 70 feet high, cultivated throughout India and eastward through the Malay Archipelago; also in tropical Africa.

35041. LANSIUM DOMESTICUM Jack. **Duku.**

From Buitenzorg, Java. Presented by the director, Botanic Garden. Received March 14, 1913.

For previous introduction, see S. P. I. No. 34976.

35042. MAMMEA AMERICANA L. **Mammee.**

From Santa Fe, Isle of Pines. Presented by Mrs. E. A. Haines. Received March 5, 1913.

35043. XIMENIA CAFFRA Sond.

From South Africa. Presented by Mr. J. Burtt Davy, government agrostologist and botanist, Union of South Africa, Department of Agriculture, Pretoria. Received March 15, 1913.

"*Zuur pruim.* An edible fruit useful for jellies. It grows in semiarid, subtropical localities, such as the Transvaal bush veld." (*Davy.*)

See S. P. I. No. 27015 for previous introduction.

35044 and 35045.

From Chile. Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received February 27, 1913.

Seeds of the following; quoted notes by Mr. Wight:

35044. VICIA FABA L. **Broad bean.**

"(30) Beans that look very ordinary to me, but the market woman says they are extra fine and much prized by the English and Germans."

35045. SOLANUM sp.

"An attractive ornamental shrub, on the way from Mendoza to Los Andes. Chilean side, at probably 6,000 feet altitude. No more seed available."

35046. PRUNUS BRIGANTINA Villars.

From Algiers, Algeria. Presented by Dr. L. Trabut. Received March 17, 1913.

See S. P. I. No. 34851 for previous introduction.

Scions.

35049 to 35057.

From St. Petersburg, Russia. Presented by Mr. Basil Benzin, Department of Agriculture. Received February 3–15, 1913.

"Most of the samples are from Semiryetchensk Government, northeastern part of Turkestan, with high plateau and moderate climate." (*Benzin.*)

Seeds of the following:

35049 and 35050. CHAETOCHLOA ITALICA (L.) Scribner. **Siberian millet.**
(*Setaria italica* Beauv.)

"(26 and 27) Red Kursk millet."

"These appear to be fairly good samples of the orange-seeded foxtail millet, such as is ordinarily grown by the farmers of Russia." (*H. N. Vinall.*)

35051. HORDEUM DISTICHON NUTANS Schubl. **Barley.**

"(18) Two-row Kirghizian barley, from Tchimkent, Syr-Daria Government."

35052. HORDEUM VULGARE L. **Barley.**

"(19) A 6-row barley from Turbat, Syr-Daria Government."

35053. HORDEUM DISTICHON NUTANS Schubl. **Barley.**

"(100) Barley, unirrigated, from Pishpek District, Semiryetchensk Government."

35054 to 35056. PANICUM MILIACEUM L. **Proso.**

35054. "(23) Black proso from Merke, Syr-Daria Government."

35055. "(24) Black Turkestan proso from Pishpek District, Semiryetchensk Government."

35056. "(25) Red proso from Aulie-ata, Syr-Daria Government."

35037. LINUM USITATISSIMUM L. **Flax.**

"(133) Flax, irrigated, from Tashkend, Syr-Daria Government."

35058 to 35074.

From Erfurt, Germany. Purchased from Haage & Schmidt, through Mr. C. V. Piper, of the Bureau of Plant Industry. Received March 20, 1913.

Seeds of the following:

35058. CHLORIS DISTICHOPHYLLA Lagasca.

(6974.)

35058 to 35074—Continued.

35059. CHLORIS GRACILIS Durand.

(6975.)

35060. CHLORIS DISTICHOPHYLLA Lagasca.

(6976.)

35061. VICIA ERVILIA (L.) Willd.

(1663.) Var. *abyssinica.*

35062. ECHINOCHLOA CRUSGALLI (L.) Beauv.
(*Panicum crusgalli* L.)

(7041.)

35063. CHAETOCHLOA ITALICA (L.) Scribner.
(*Setaria italica* Beauv.)

(7047.)

35064. TRICHOLAENA ROSEA Nees.
(*Panicum teneriffae* R. Br.)

(7052.)

35065. PANICUM MILIACEUM L.

(7053.)

35066. PASPALUM STOLONIFERUM Bosc.

(7055.)

35067. PASPALUM NOTATUM Fluegge.
(*Paspalum distichum* L.)

(1602.)

35068. PASPALUM DILATATUM Poir.

(1603.)

35069. POLYPOGON sp.

(7070.)

35070. POLYPOGON sp.

(7072.)

35071. CHAETOCHLOA ITALICA (L.) Scribner.
(*Setaria italica* Beauv.)

(7079.)

35072. TRICHOLAENA ROSEA Nees.
(*Panicum teneriffae* R. Br.)

(7089.)

35073. OSTERDAMIA MATRELLA (L.) Kuntze.
(*Zoysia pungens* Willd.)

(7110.)

35074. CHLORIS ELEGANS H. B. K.

(6973.)

35075 to 35077. ELEUSINE CORACANA (L.) Gaertn. **Ragi.**

From Bangalore, Mysore, India. Presented by Mr. H. V. Krishanayya, Acting Officer in Charge of the Agricultural Department. Received March 26, 1913.

Seeds of the following; see S. P. I. No. 34768 for description:

35075. "*Dodda Ragi.*"

35075 to 35077—Continued.

35076. "*Goodubile*" or "*Jenumuddle Ragi*."

35077. "*Majjige Ragi*."

"This variety is not grown except in a few lines in large fields here and there. It is not held in such high estimation as the other varieties." (*Krishanayya.*)

35078 to 35082. NICOTIANA RUSTICA L. **Tobacco.**

From St. Petersburg, Russia. Presented by Mr. Basil Benzin, Department of Agriculture. Received March 25, 1913.

35078. "*Makhorka lokvikha.*"

35079. "*Bakun sasnitzniĭ.*"

35080. "*Tchvitzent kremenetzkiĭ.*"

35081. "*Bakun menskiĭ.*"

35082. "*Kok tumbeki tashkentsky.*"

35083. PHOENIX DACTYLIFERA L. **Date.**

From Tunis, Africa. Purchased from Mr. A. Martel, Deggache, through Mr. T. H. Kearney. Received February 13, 1913.

"*Menakher.*"

"These dates were imported to secure seeds for distribution to date breeders in the Salton Basin, in southeastern California. At least one promising Menakher seedling fruited in 1913, and a few enthusiastic breeders are specializing in this celebrated variety." (*Walter T. Swingle.*)

See S. P. I. 29391 for previous introduction.

For an illustration of the Menakher date palm, as grown in Tunis, see Plate III.

35084. DIOSPYROS MONTANA Roxburgh.

From Colombo, Ceylon. Presented by Dr. C. Drieberg, secretary, Ceylon Agricultural Society. Received March 27, 1913.

See S. P. I. Nos. 31644 and 32799 for previous introductions.

35085 to 35087. MEDICAGO SATIVA L. **Alfalfa.**

From Novospassko, Syzran-Riazan R. R., Russia. Purchased from Mr. A. Woeikoff by Mr. Frank N. Meyer, of the Bureau of Plant Industry. Received March 26, 1913.

35085. (No. 1.)

35086. (No. 2.)

35087. (No. 3.)

35088 to 35115.

From La Mortola, Ventimiglia, Italy. Presented by Mr. Alwin Berger, director, Botanic Gardens. Received February 27, 1913.

Seeds of the following:

35088. ACACIA PYCNANTHA Bentham. **Golden wattle.**

"Except in very dry localities, this species is common to nearly all districts of South Australia north of Encounter Bay and is occasionally to be met with along the coast from Kingston to the Glenelg River. Its principal habitat, however, and the one where the thoroughly tropical form and the largest trees of the species are found, is in the Adelaide hills and plains from Encounter Bay to Clare. For propagation purposes seeds should be obtained, if possible,

35088 to 35115—Continued.

from trees grown within these limits. This is the "broad-leaved wattle," sometimes called "golden, black, or green wattle," and is one of the richest tanning barks in the world, and analysis shows it to contain 46.47 per cent tannic acid. The powder from the bark of the limb is generally of a lighter color than that obtained from the butt of the tree. The average height of this tree runs from 20 to 25 feet, with diameters from 6 to 10 inches." (*J. H. Maiden, Wattles and Wattle Barks.*)

35089. ASPARAGUS COOPERI Baker. **Asparagus.**

"This asparagus has nothing particularly striking about it, either from a botanical or horticultural point of view. The flowers are very small and not abundantly produced, the firm, twining, wirelike main stem sending out very copious slender branches at right angles, and these, again, still more slender, spreading, threadlike ultimate branchlets, from which the numerous minute needlelike cladodes spring in dense close clusters. This asparagus was found by Mr. MacOwan in the woods on the slope of Mount Boschberg at an elevation of 4,000 feet above the sea level. This asparagus climbs to a height of 10 to 12 feet and has a shrubby terete stem 1½ to 2 inches in thickness at the base." (*Gardeners' Chronicle, June 27, 1874.*)

Introduced for the asparagus-breeding collection.

35090. BESCHORNERIA sp.

This was received as *Beschorneria roseana*, a name for which no place of publication has yet been found.

35091. BESCHORNERIA YUCCOIDES C. Koch.

35092. BETULA sp. **Birch.**

(Wilson No. 71. China.)

35093. BUDDLEIA NIVEA Duthie.

"A new species from central China and of doubtful promise. The flowers are not so striking as some of the species recently introduced; but this defect is compensated for by the great beauty of the foliage, the whole undersurface of which is, together with the young wood and leaves, covered with a dense white woolly tomentum. The flowers in tail-like panicles at the end of the branch are rose purple in color, individually small, but in a mass conspicuous." (*Hortus Veitchii.*)

35094. CLERODENDRUM sp.

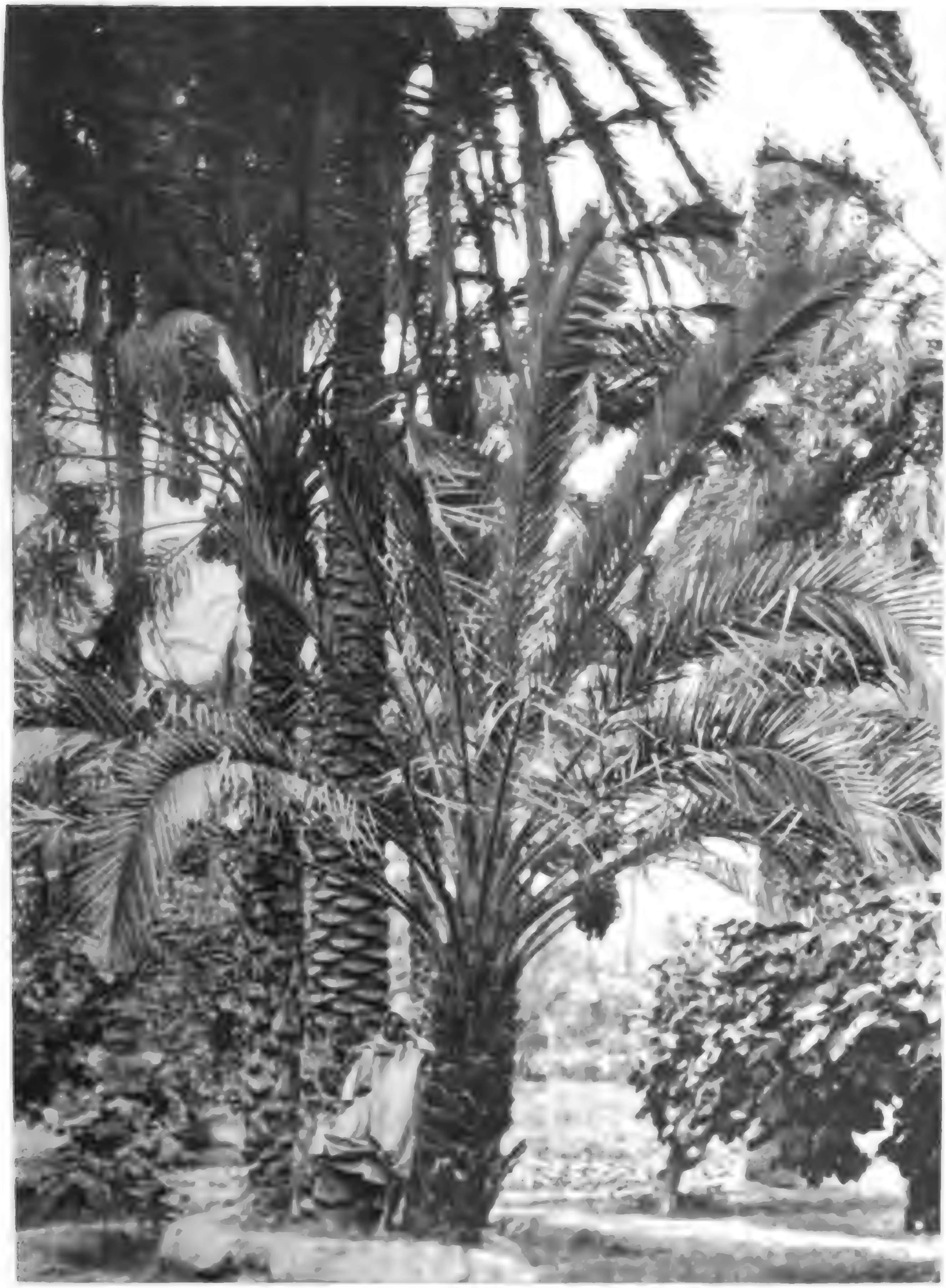
(Wilson No. 216.)

35095. × CRATAEGUS CARRIEREI W. J. Bean. **Hawthorn.**

"This small tree is of doubtful origin, all the individuals having been obtained from single seedlings, which appeared spontaneously several years ago in the nursery of the Jardin des Plantes, in Paris. In some ways it resembles some Mexican species; and it might be Mexican but for the fact of its hardiness, which would seem to indicate a colder home than Mexico. The fact that the seedlings are identical with the parent seems to preclude the idea of hybrid origin; but whatever this may have been, *C. carrierei* is an ornamental plant of the first class. It is covered with thick, pointed, lustrous leaves which, when turning from green to the slightest yellow tinge, set off to advantage the large light orange-red oblong fruits, which are produced in great abundance." (*Bulletin No. 12, Arnold Arboretum.*)

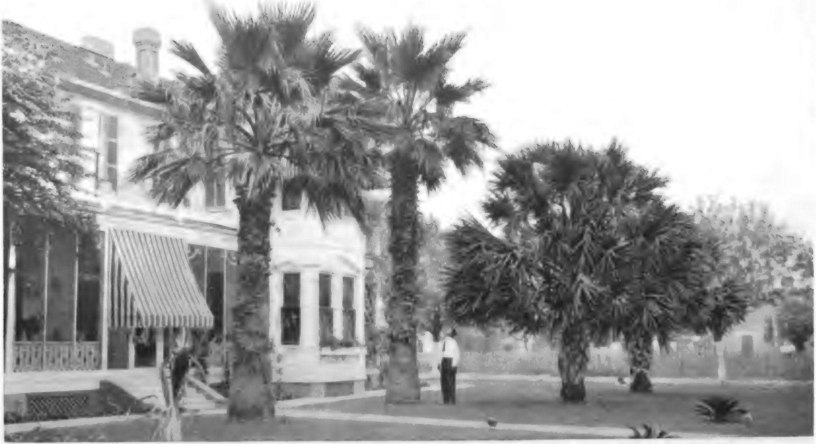
35096. CYPHOMANDRA FRAGRANS (Hook.) Sendt. **Tree tomato.**

Distribution.—A tall shrub with very fragrant flowers found in South America from Argentina to Guiana.



FRUITING TREE OF THE MENAKHER DATE PALM. (S. P. I. No. 35083.)

One of the rarest varieties of Tunis, known only in the Jerid Oasis, where it has become rare. A very large date of excellent flavor and adapted to cultivation in the Southwest. An Arab is leaning against the Menakher palm. (Photographed by T. H. Kearney Nov. 2, 1904; No. 2274.)



A NEW PALMETTO (INODES EXUL O. F. COOK), DISCOVERED BY MR. COOK AT VICTORIA, TEX. (S. P. I. No. 35116.)

The two tall palms on the left are *Washingtonia filifera*, while the two on the right are of the new species, probably of Mexican origin. This Victoria palmetto may find a place in the front rank of ornamental palms. (Photographed by O. F. Cook and C. B. Doyle.)

35088 to 35115—Continued.

35097. Echium wildpretii Pearson.

"This seed made its debut in Kew in 1899. It was raised from seed sent in by Mr. Wildpret, Curator of the Botanic Gardens, Orotava, Teneriffe. This Echium is very attractive, even before the flower spikes open; their leaves, covered with silky hairs, after the manner of the silver fir, form a handsome rosette 18 inches high and through. The flower spike adds another 2 feet to this height, and when the purplish-pink flowers are all open, the plant is singularly handsome. The altitude at which it grows wild at Teneriffe has not yet been recorded, but is probably some distance above sea level, and therefore the plant ought to be a good one for open-air gardening, if protected from the frosts." (*Gardeners' Chronicle, October 26, 1912.*)

35098. Entelea palmata Lindl.

35099. Hypericum hookerianum Wight and Arn. **St. John's-wort.**

"(Wilson No. 1355.) A native of northern India, Nepal, and the Himalayas, at an elevation of 6,000 to 12,000 feet, found on the hills about Mufflong, Assam, by Thomas Lobb, through whom it was introduced. It forms a neat bush, with evergreen leaves and large rich-yellow flowers, unfortunately not perfectly hardy in all localities." (*Hortus Veitchii, p. 400.*)

35100. Indigofera amblyantha Craib.

(Wilson No. 786. China.)

"From Ichang, western Hupeh, at altitudes of 300 to 1,000 meters, December, 1907." (*Sargent, Plantae Wilsonianae, vol. 2, p. 99.*)

35101. Jasminum floridum Bunge. **Jasmine.**

(Wilson No. 789.) "The flowers are yellow, one-half an inch in diameter, in lax cymes; calyx teeth long, subulate, leaves alternate, pinnately trifoliate. It is from China and Japan, and is considered a hardy ornamental shrub in England." (*Nicholson, Dictionary of Gardening.*)

35102. Nephelium tomentosum F. Mueller.

Distribution.—A small tree found along streams in Queensland and New South Wales, in Australia.

35103. Passiflora alba Link and Otto. **Passion fruit.**

"A charming species from New Grenada, with pure white flowers. The leaves are glabrous, glaucescent beneath, somewhat cordate at the base, 5 nerved, trilobed; lobes oval, somewhat glandularly serrated at the base; petioles biglandular in the middle. This Passiflora is a native of Brazil. The name *P. atomaria* was given by Planchon to a form of this species, in which the petals were speckled with small purplish spots." (*Gardeners' Chronicle*, 1883.)

35104. Passiflora banksii Benth. **Passion fruit.**

"It is an evergreen climber and has scarlet flowers. This Passiflora comes from New South Wales and Queensland." (*Guilfoyle, Australian Plants, p. 277.*)

35105. Phoenix sp. **Palm.**

This date palm, apparently a hybrid of *Phoenix canariensis*, perhaps with *P. dactylifera*, was received as *Phoenix rivieri* Hort. Mort., a name used in Berger's Hortus Mortolensis, but not published.

35106. Pilocarpus pennatifolius Lemaire. **Jaborandi.**

Distribution.—A shrub with long spikes of red flowers, found in the vicinity of Cujaba, in the province of Matto Grosso, in Brazil.

35088 to 35115—Continued.

35107. Pinus pyrenaica Lapeyr. **Pine.**

"The geographical range of *Pinus pyrenaica* may be stated in general terms to extend through the Mediterranean region from the Pyrenees to the Levant and Asia Minor, whence it spreads eastward through northern Persia into Afghanistan as far as Herat. It occurs on many of the mountain ranges throughout this region at altitudes of 2,000 to 6,000 feet; in the more densely inhabited parts of the Mediterranean littoral it is seen only in groups, separated by a considerable interval from each other; on the lower slopes of the Cilician Taurus it forms extensive forests, for the most part unmixed with other trees. The economic value of this pine is considerable in those districts where it is still abundant, as in Cilicia and the adjacent parts of Asia Minor. To the inhabitants of this region it supplies the best timber for building and many other constructive purposes, but as the forests are under no kind of supervision or control by the government of the country, the trees are felled in a most reckless manner and with a most deplorable waste of material. Still greater destruction is caused by the turpentine collectors, who mutilate and render useless every tree they attack." (*Veitch's Manual of Coniferæ.*)

35108. Pittosporum phillyraeoides DC. **Butter bush.**

"This tree is sometimes called butter bush, native willow, and poison berry, and is said to yield a gum somewhat similar to gum arabic, and even superior to it. The seeds are very bitter to the taste, yet the aborigines in the interior were in the habit of pounding them into flour for use as food. It is found in all the colonies of Australia, with the exception of Tasmania." (*Maiden, Useful Native Plants of Australia, pp. 53 and 220.*)

35109. Rhus punjabensis sinica (Diels) Rehder and Wilson.

(Wilson No. 275. China.)

"From woodlands south of Ichang, western Hupeh, at altitudes of 1,000 to 1,600 meters, September, 1907. A small tree 5 to 8 meters tall, with whitish flowers and crimson fruit." (*Sargent, Plantae Wilsonianae, vol. 2, p. 176.*)

35110. Rosa sp. **Rose.**

(Wilson No. 619. China.)

35111. Rosa sp. **Rose.**

(Wilson No. 666. China.)

35112. Rosa sp. **Rose.**

(Wilson No. 666–A. China.)

35113. Passiflora manicata (Juss.) Persoon. **Passion fruit.**
(*Tacsonia manicata* Juss.)

Distribution.—A climbing vine with red flowers found in the vicinity of Loja, Ecuador, and in Peru and Colombia.

35114. Psedera henryana (Hemsl.) Schneider.
(*Vitis henryana* Hemsl.)

"The habit of this plant is that of the common Virginia creeper, but the color is more gorgeous. The young foliage is a rich scarlet; the older foliage has a bronzy tint, like that of *Leea amabilis*. The leaf lobes, both in the young scarlet stage and in the adult form, have a silvery band along the midrib and side branches. The plant is a native of Hupeh and Ichang, central China, where it was discovered by Dr. Henry. It is quite hardy." (*Gardeners' Chronicle, p. 309.*)

35115. Ampelopsis delavayana Planchon.

See S. P. I. No. 34592 for previous introduction.

35116. INODES EXUL O. F. Cook. **Palmetto.**

From Victoria, Tex. Presented by Mr. O. F. Cook, of the Bureau of Plant Industry. Received March 26, 1913.

"This is a new palmetto occurring in cultivation in some portions of Texas, and especially at Victoria, whence this material was received. It is described as being related to some of the other Mexican forms of this genus, which suggests that it probably originated in Mexico. Some of the palmettos of this new species are really magnificent, with their stately crowns of large vivid-green leaves, firmly supported on massive petioles, also of living green. Even the trunk appears green, for the sheathing leaf bases retain their color.

"The crown is more ample than most palms, because of the firm texture and persistent vitality of the leaves. This lends an impression of extreme vigor and luxuriance and adds greatly to the decorative effect. In short, it seems not unlikely that the Victoria palmetto may find a place in the front rank of ornamental species.

"This species is distinguished from related species by its large size, the deep-green foliage, the thickened branchlets of the inflorescence, the solitary fruit, and the large seed, not wrinkled above nor hollowed out below.

"At Victoria these cultivated palmettos have passed, without any damage to the leaves, through freezes that killed many of the wild *Acacia farnesiana*. Though certain other palms are able to survive such temperatures and are worthy of being planted for special purposes, the mutilation of the leaves means a loss of decorative value for several months. Frost-proof foliage is especially desirable in an ornamental species." (*Abstract from O. F. Cook's article, "A New Ornamental Palmetto in Southern Texas," Circular 113, Bureau of Plant Industry.*)

For an illustration of this new species of palmetto, as grown in Texas, see Plate IV.

35117 to 35120. DIOSPYROS KAKI L. f. **Persimmon.**

From Wakamatsu, Japan. Presented by Rev. Christopher Noss, D. D., at the request of Rev. H. Loomis, Yokohama, Japan. Received March 30, 1913.

35117. "*Gosho.* Medium, nonastringent."

35118. "*Kōshu maru.* Late, nonastringent."

35119. "*Myōdō.* Late, nonastringent."

35120. "*Ōhassaku.* Early, nonastringent."

35121. PERSEA AMERICANA Miller. **Avocado.**

(*Persea gratissima* Gaertn. f.)

From Caracas, Venezuela. Presented by Mr. H. Pittier, of the Bureau of Plant Industry. Received March 31, 1913.

"This aguacate is called *Veranero* on account of the crop coming at the end of the dry season, while the high time for the other varieties growing about Caracas is August. It is smaller than the common varieties coming from the tierra caliente, which can also be obtained now in the market. Besides, its outer color is characteristically yellow and it has a special very fine flavor. As it grows here up to above 1,400 meters, it should do well in southern California and in other parts of the South where the rain is somewhat scarce." (*Pittier.*)

For an illustration of the fruit of the Veranero variety of avocado, as grown in Venezuela, see Plate V.

35122. MEDICAGO SATIVA L. **Alfalfa.**

From Algiers, Algeria. Presented by Dr. L. Trabut. Received March 24, 1913.

35126 to 35131.

From Glasnevin, Dublin, Ireland. Presented by the Royal Botanic Gardens. Received March 24, 1913.

Seeds of the following:

35126. ACONITUM SCAPOSUM PYRAMIDALIS Franch. **Monkshood.**

"A strong-growing hardy herbaceous perennial with foliage typical of the genus and pyramidal spikes of dark-blue flowers crowded on the upper two-thirds of a scape 2 to 2½ feet in height. The flowers consist of a long blue spur with little or no hood, and the small petals are whitish tipped with green. It is a native of central China." (*Hortus Veitchii, p. 413.*)

35127. CLEMATIS HERACLEAEFOLIA DC. **Clematis.**

"This is a distinct and curious species. The plant is sarmentose, but not climbing; its branches, 4½ to 6 feet long, hang from the rocks or creep over the soil. The leaves are large, 9 inches long and 8 inches broad, composed of 5 leaflets, the terminal being much larger than the other. They are dentate and of a deep-green tint, somewhat shiny. The flowers are very numerous, borne in large panicles, rather small, of the same form and size of those of *C. vitalba*, but of a light-blue color. They seed rarely, but the species may be easily increased by grafting. The profusion of the little bluish flowers in immense racemes from August till November makes the plant a very decorative one. It grows in shady or sunny positions and in any good soil." (*Gardeners' Chronicle, January 22, 1898.*)

35128. COTONEASTER SIMONSI Baker.

"This Himalayan shrub is certainly a fine one and should encourage lovers of trees and shrubs to plant the species more frequently in positions where the individual character of the tree will be seen to advantage when it attains something like its full growth. When trained against a wall, the branches of this species often reach heights of from 10 to 12 feet. It is sometimes used, however, as an edging to garden paths where it gets neither support nor shelter. *C. simonsi*, though not exactly erect, is self-supporting, and when so grown is about 6 feet high and 4 feet through. It fruits freely, but unfortunately it is not perfectly evergreen, although it withstands the milder winters. It is sometimes so thickly covered with bright red berries that it becomes scarcely possible to place one's finger between them." (*Gardeners' Chronicle, April 16, 1910.*)

35129. DELPHINIUM DUHMBERGI E. Huth. **Larkspur.**

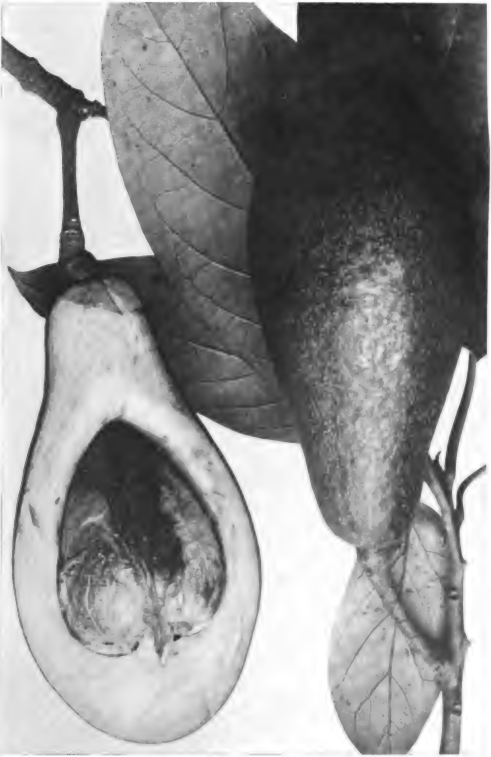
Distribution.—An herbaceous perennial found in central Russia, the Altai region of Siberia, and in Turkestan.

35130. EREMURUS TURKESTANICUS Regel.

"This species of Eremurus is not a very handsome one. It has a loose spike with white flowers greenish on the outside; short purple-black filaments; long red anthers. The pedicels are erect and very stout at the top. The capsule is glabrous, pyriform. The seeds are gray and larger than the brown seeds of *E. altaicus*." (*Gardeners' Chronicle, January 10, 1905.*)

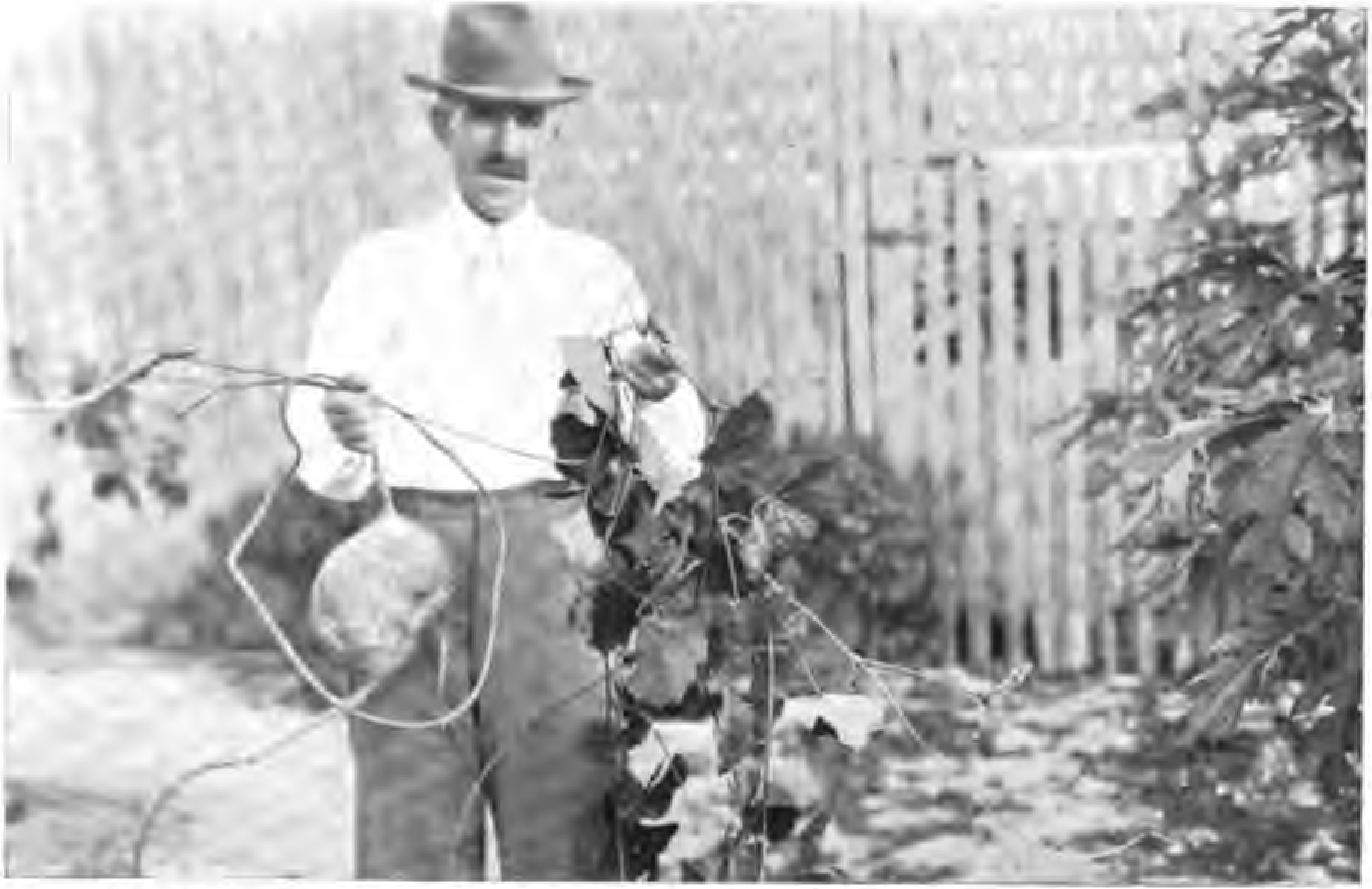
35131. VIOLA CORNUTA L. **Horned violet.**

"*Alba.* Among the foremost of our useful bedding plants this one holds an honorable position. The constitution of the plant is good, and it appears capable of withstanding alike both dashing wind and pelting rain, and neither tropical sunshine nor long-continued drought affect it." (*Gardeners' Chronicle, October 7, 1871.*)



THE VERANERO AVOCADO (PERSEA AMERICANA MILL.) FROM CARACAS, VENEZUELA. (S. P. I. No. 35121.)

A variety ripening its crops in March, at the end of the dry season; smaller than the August-ripening varieties, but of a characteristic yellow color and of a special, very fine flavor; grows at 1,400 meters altitude. Introduced through H. Pittier. (Photographed by Mr. Pittier, Crop Acclimatization No. 15536.)



Root and Vine of the Yam Bean (Cacara erosa (L.) Kuntze, Formerly Known as Pachyrhizus angulatus Rich.). (S. P. I. No. 35135.)

A rampant, luxuriously growing vine, which produces underground starchy roots of great size. William Harris, of Jamaica, proposes it as a rival for the manihot or cassava as a commercial starch producer. Its pods are also edible, and its production of foliage and quickly decaying vines has suggested its use as a cover crop in Florida. (Photographed by David Fairchild, at the Miami Garden, Fla., Feb. 2, 1913; No. 10622.)

35132. CYMBOPOGON JWARANCUSA (Roxb.) Schultes. **Ginger grass.**

(*Andropogon jwarancusa* Roxb.)

From Dehra Dun, India. Presented by Mr. R. S. Hole, forest botanist, Forest Research Institute and College. Received March 26, 1913.

"It is believed that *Cymbopogon schoenanthus* Spreng. (*C. laniger*) is merely an edaphic variety of this species, the commercial oil yielded by both being the same" (*Hole.*)

35133. ACTINIDIA CHINENSIS Planchon. **Yangtaw.**

From Chelsea, London, England. Purchased from James Veitch & Sons. Received March 29, 1913.

These are cuttings from the female plant which ripened fruit in England in 1911 and are the first known female plants of this promising fruit-producing species to be introduced into this country. The male flowers and the general appearance of this plant were illustrated in Circular No. 110 of the Bureau of Plant Industry.

35134. CACARA EROSA (L.) Kuntze. **Yam bean.**

(*Pachyrhizus angulatus* Rich.)

From Jamaica. Presented by Rev. C. N. Field, Boston, Mass. Received March 31, 1913.

"Yam beans from Jamaica." (*Field.*)

See S. P. I. No. 33258 for previous introduction and description.

35135. CACARA EROSA (L.) Kuntze. **Yam bean.**

(*Pachyrhizus angulatus* Rich.)

From San Jose, Costa Rica. Presented by Mr. Rafael Arias C., through Mr. J. E. van der Laat, Director of the Department of Agriculture. Received March 27, 1913.

"*Jicama* of San Salvador. This is a leguminous plant with edible roots, sweet taste, of the size of a child's head." (*Van der Laat.*)

See S. P. I. Nos. 33258 and 35134 for previous introductions.

For an illustration of the root and vine of *Cacara erosa*, see Plate VI.

BOTANICAL NOTE AND PUBLICATION OF A NEW NAME

PLANT LISTED IN THIS INVENTORY.

34817. CHAETOCHLOA LINDENBERGIANA (Nees) Hitchc.

(*Panicum lindenbergianum* Nees, Flor. Afr. Austral., p. 47, 1841.)
(*Setaria lindenbergiana* (Nees) Stapf, Flora Capensis, vol. 7, p. 422, 1899.)

Seeds of this South African grass were received under the name *Setaria lindenbergiana* Stapf. The generic name Chaetochloa is now used for this genus. *Chaetochloa lindenbergiana* seems never to have been published, and it is necessary to adopt it here. (*A. S. Hitchcock.*)

INDEX OF COMMON AND SCIENTIFIC NAMES.

Abutilon sp., 34978.
Acacia elata, 34837.
  pycnantha, 35088.
  spectabilis, 34838.
Acanthopanax ricinifolium, 34783.
Acanthosicyos horrida, 34734.
Acer ginnala semenovii, 34784.
  heldreichii, 34988.
Acle. See *Albizzia acle*.
Aconitum scaposum pyramidalis, 35126.
Acrocomia totai, 34735.
Actinidia chinensis, 35133.
Afzelia rhomboidea. See *Pahudia rhomboidea*.
Albizzia acle, 35036.
Alfalfa. See *Medicago sativa*.
Allium cepa, 35033.
Alstroemeria spp., 34995, 34996.
Alysicarpus longifolius, 34931.
  pubescens, 34932.
  rugosus, 34933.
Ampelopsis delavayana, 35115.
Amygdalus persica nectarina, 34997.
Anacardium sp., 34736.
Ananas sativus, 34828.
Andropogon annulatus, 34934.
  citratum. See *Cymbopogon citratus*.
  jwarancusa. See *Cymbopogon jwarancusa*.
  nardus. See *Cymbopogon nardus*.
  odoratus, 34927.
  sorghum. See *Holcus sorghum*.
  squarrosus. See *Vetiveria zizanioides*.
Annona sp., 34877.
Apricot. See *Prunus armeniaca*.
Arenga saccharifera. See *Saguerus pinnatus*.
Aristoclesia esculenta, 34878.
Aristotelia chilensis, 34778.
  macqui. See *Aristotelia chilensis*.
Asparagus sp., 34975.
  africanus, 34912.
  cooperi, 35089.
Astragalus falcatus, 34992.
Avocado (Mexico), 34855, 34856, 34904.
  Palta, 34994.
  (Pincio), 34831.
  Veranero, 35121.

Barley. See *Hordeum* spp.
Basanacantha armata. See *Basanacantha spinosa*.
  spinosa, 34944.
Bean. See *Phaseolus vulgaris* and *Phaseolus coccineus*.
  adzuki. See *Phaseolus angularis*.
  broad. See *Vicia faba*.
  jack. See *Canavali ensiforme*.
  mung. See *Phaseolus aureus*.
  soy. See *Soja max*.
  sword. See *Canavali gladiatum*.
  yam. See *Cacara erosa*.
Beschorneria sp. 35090.
  roseana. See *Beschorneria* sp.
  yuccoides, 35091.
Betula sp., 35092.
Birch. See *Betula* sp.
Bomarea sp., 34979.
Bonga de China. See *Normanbya merrillii*.
Borassus flabellifer, 35040.
Boronia pinnata, 34839.
Brachychiton acerifolium, 34840.
Bread-nut tree. See *Piratinera alicastrum*.
Bromus unioloides, 34806.
Brosimum alicastrum. See *Piratinera alicastrum*.
Buddleia nivea, 35093.
Butter bush. See *Pittosporum phillyraeoides*.

Cacara erosa, 35134, 35135.
Calodendrum capensis. See *Pallasia capensis*.

Calyptranthes tonduzii, 34980.
Camellia thea. See *Thea sinensis*.
Campomanesia sp., 34879.
Canavali ensiforme, 34824, 34991.
  gladiatum, 34825.
Caragana decorticans, 34989.
Carica papaya, 34774, 34777, 34903.
Caryota sobolifera, 34739.
Cashew. See *Anacardium* sp.
Cassia obovata, 34809.
  occidentalis, 34810.
Castor bean. See *Ricinus communis*.
Ceiba pentandra, 34875.
Cereus sp., 34999.
  quisco, 34998.
Chaenomeles japonica, 34864.
Chaetochloa italica, 34771, 35049, 35050, 35063, 35071.
  lindenbergiana, 34817.
Chenopodium quinoa, 34823.
Cherry, bush. See *Prunus prostrata*.
Chloris distichophylla, 35058, 35060.
  elegans, 35074.
  gracilis, 35059.
Chrysopogon montanus, 34935.
Citronella. See *Cymbopogon nardus*.
Citrullus vulgaris, 34737.
Citrus spp., 34755, 34756, 34775.
  limonia × *grandis*, 34830.
  sinensis, 34860.
Clematis heracleaefolia, 35127.
Clerodendrum sp., 35094.
Clover, red. See *Trifolium pratense*.
  yellow sweet. See *Melilotus officinalis*.
Coccolobis sp., 34982.
Cocos romanzoffiana, 34757.
Colletia cruciata, 34758.
Cordyline baueri, 34850.
  terminalis, 34849.
Corn. See *Zea mays*.
Corylus avellana, 34785.
Cotoneaster ignava, 34786.
  simonsi, 35128.
Cotton. See *Gossypium hirsutum*.
Cowpea. See *Vigna sinensis*.
Crataegus arnoldiana, 34782.
  ×*carrierei*, 35095.
  peckii, 34990.
Crotalaria grantiana, 34740.
Cucumis melo, 34983, 34984, 35000 to 35002.
Cucurbita maxima, 34862.
  sp., 35003.
Cupang. See *Parkia timoriana*.
Curcuma longa, 34773.
Cymbopetalum penduliflorum, 35039.
Cymbopogon citratus, 34728.
  jwarancusa, 35132.
  nardus, 34729.
Cyphomandra betacea, 34974.
  fragrans, 35096.
Cypress vine. See *Ipomoea quamoclit*.
Cytisus sp., 35004.

Dactyloctenium aegyptium, 34939.
Date. See *Phoenix dactylifera*.
Deckenia nobilis, 34832.
Delphinium duhmbergi, 35129.
Dillwynia ericifolia, 34841.
Dioscorea sp., 34861.
Diospyros kaki, 34970 to 34973, 35117 to 35120.
  montana, 35084.
Dotalu. See *Loxococcus rupicola*.
Duku. See *Lansium domesticum*.

Echinochloa crusgalli, 35062.
Echium wildpretii, 35097.
Elaeis guineensis, 34741.
Eleusine aegyptiaca. See *Dactyloctenium aegyptium*.
  coracana, 34768, 35075 to 35077.
Elichrysum orientale, 34819.
Elm. See *Ulmus glabra suberosa*.
Entelea palmata, 35098.
Eragrostis superba, 34818.
Eremurus turkestanicus, 35130.
Eriodendron anfractuosum. See *Ceiba pentandra*.
Eugenia uniflora, 34880.
Evening primrose. See *Oenothera* spp.

Feroniella oblata, 34835.
Field pea. See *Pisum sativum*.
Filbert. See *Corylus avellana*.
Flame tree. See *Brachychiton acerifolium*.
Flax. See *Linum usitatissimum*.
Fragaria vesca, 35005.

Garcinia sp., 34881.
Genipa americana, 34882.
Genipap. See *Genipa americana*.
Glycine hispida. See *Soja max*.
Gossypium hirsutum, 34826, 34827.
Grass, ginger. See *Cymbopogon jwarancusa*.
  lemon. See *Cymbopogon citratus*.
Grevillea banksii, 34872.
Guava. See *Psidium guajava*.

Haemanthus eetveldeanus, 34885.
Halimodendron argenteum. See *Halimodendron halodendron*.
  halodendron, 34787.
Harpephyllum caffrum, 34943.
Hawthorn. See *Crataegus* spp.
Holcus sorghum, 34911, 34985, 34986.
Holly. See *Ilex corallina*.
Honeysuckle. See *Lonicera floribunda*.
Hordeum distichon nutans, 35051, 35053.
  vulgare, 35052.
Hypericum hookerianum, 35099.

Ilex corallina, 34836.
Immortelle. See *Elichrysum orientale*.
Indigofera amblyantha, 35100.
  glandulosa, 34936.
  linifolia, 34937.
  trifoliata, 34938.
Inodes exul, 35116.
Ipomoea quamoclit, 34767.

Jaborandi. See *Pilocarpus pennatifolius*.
Jasmine. See *Jasminum floridum*.
Jasminum floridum, 35101.
Juglans regia, 35006.
Jujube. See *Ziziphus jujuba*.

Kafir, dwarf. See *Holcus sorghum*.
Kafir plum. See *Harpephyllum caffrum*.
Kandela. See *Kerstingiella geocarpa*.
Kapok. See *Ceiba pentandra*.
Kennedya rubicunda, 34842.
Kerstingiella geocarpa, 34916 to 34919.
Kurrajong. See *Grevillea banksii*.

Lagunaria patersonii, 34843.
Lansium domesticum, 34920, 34976, 35041.
Lathyrus sp., 35007.
Larkspur. See *Delphinium duhmbergi*.
Leptospermum flavescens, 34844.
  scoparium, 34853.
Licania platypus, 34915.
Licuala peltata, 34742.
Lily, palm. See *Cordyline terminalis*.
Linum usitatissimum, 35057.
Loasa sp., 35008.
Lonicera floribunda, 34788.
Loxococcus rupicola, 34743.
Lucuma neriifolia. See *Pouteria neriifolia*.

Mahogany. See *Swietenia macrophylla*.
Mammea americana, 35042.
Mammee. See *Mammea americana*.
Mangifera sp., 34907.
Mango. See *Mangifera* sp.
Manuka, Nicholls's. See *Leptospermum scoparium*.
Maple. See *Acer ginnala semenovii*.
Maqui. See *Aristotelia chilensis*.
Medicago carstiensis, 34772.
  sativa, 34863, 35085 to 35087, 35122.
Melilotus officinalis, 34822.
Millet. See *Chaetochloa italica*.
Mimosa acle. See *Albizzia acle*.
Monkshood. See *Aconitum scaposum pyramidalis*.
Moquilea platypus. See *Licania platypus*.
Muskmelon. See *Cucumis melo*.
Myrtus spp., 34760, 34761.

Narras. See *Acanthosicyos horrida*.
Nectandra sanguinea, 34981.
Nectarine. See *Amygdalus persica nectarina*.
Nephelium tomentosum, 35102.
Nicotiana rustica, 34752 to 34754, 34820, 35078 to 35082.
  tabacum, 34821.
Normanbya merrillii, 34732.

Ochna pulchra, 34942.
Oenothera mollissima, 35010.
  odorata, 35009.
Oncosperma filamentosum, 34744.
Onion. See *Allium cepa*.
Opuntia sp., 35011.
Orange (China), 34775.
  (Florida), 34860.
Oreodoxa regia. See *Roystonea regia*.
Osterdamia matrella, 35073.

Pachyrhizus angulatus. See *Cacara erosa*.
Pacuri. See *Aristoclesia esculenta*.
Pahudia rhomboidea, 35034.
Pallasia capensis, 34845.
Palm, African oil, 34741.
  Alexandra, 34738.
  date, 35083.
    (Italy), 35105.
  (Java), 34735, 34738, 34739, 34742, 34744, 34745, 34747, 34748, 34757.
  (Mauritius), 34832, 34833.
  Nibung, 34744.
  Palmyra, 35040.
  royal, 34747.
Palmetto. See *Inodes exul*.
Panax elegans. See *Polyscias elegans*.

Panicum crusgalli. See *Echinochloa crusgalli*.
lindenbergianum. See *Chaetochloa lindenbergiana*.
miliaceum, 35054 to 35056, 35065.
teneriffae. See *Tricholaena rosea*.
Papaya. See *Carica papaya*.
Parkia roxburghii. See *Parkia timoriana*.
timoriana, 35035.
Paspalum dilatatum, 35068.
distichum. See *Paspalum notatum*.
notatum, 35067.
stoloniferum, 35066.
Passiflora alba, 35103.
banksii, 35104.
manicata, 35113.
Passion fruit. See *Passiflora* spp.
Pea. See *Pisum sativum*.
Perilla arguta. See *Perilla nankinensis*.
nankinensis, 34829.
Persea americana, 34831, 34855, 34856, 34904, 34994, 35121.
gratissima. See *Persea americana*.
Persimmon, Fugi, 34972.
Giombo, 34973.
Gosho, 35117.
(Japan), 34970 to 34973, 35117 to 35120.
Koshu maru, 35118.
Mishirazŭ (Aizŭ), 34970.
(Sakushu), 34971.
Myodo, 35119.
Ohassakŭ, 35120.
Phaseolus aureus, 34776.
angularis, 34812 to 34816, 34948 to 34969.
coccineus, 34888, 34889.
vulgaris, 34731, 34890 to 34900, 35012 to 35016.
Philodendron robustum, 34762.
Phoenix dactylifera, 35083.
sp., 35105.
Pilocarpus pennatifolius, 35106.
Pine. See *Pinus pyrenaica*.
Pineapple. See *Ananas sativus*.
Pinus pyrenaica, 35107.
Piratinera alicastrum, 34876.
Pisum sativum, 34941, 35018.
Pitanga. See *Eugenia uniflora*.
Pithecolobium pruinosum, 34846.
Pittosporum phillyraeoides, 35108.
revolutum, 34847.
Platonia insignis. See *Aristoclesia esculenta*.
Plum. See *Prunus* spp.
Poa pallens, 34807.
Polypogon spp., 35069, 35070.
Polyscias elegans, 34848.
Poplar. See *Populus* spp.
Populus alba, 34789.
balsamifera, 34791.
× *berolinensis*, 34792.
candicans, 34794.
deltoides, 34790, 34793.
laurifolia, 34797.
nigra, 34795, 34796.
petrowskiana, 34801.
simonii, 34779, 34798.
suaveolens, 34799.
tremula, 34800.
Potato (Chile), 35024 to 35028.
(France), 34921 to 34923.
Pouteria neriifolia, 34759.
Prickly pear. See *Opuntia* sp.
Primrose, evening. See *Oenothera* spp.
Proso. See *Panicum miliaceum*.
Prunus sp., 35020.
armeniaca, 34865, 35019.
brigantina, 34851, 35046.
maximowiczii, 34802.
prostrata, 34803.
Psedera henryana, 35114.
Psidium guajava, 34763.
Psychotria luçoniensis, 35037.
luzoniensis. See *Psychotria luçoniensis*.
Ptychosperma gracilis, 34738.
Pumpkin. See *Cucurbita maxima*.
Pyrus japonica. See *Chaenomeles japonica*.

Queensland pyramid tree. See *Lagunaria patersonii*.
Quince, Japanese. See *Chaenomeles japonica*.
Quinoa. See *Chenopodium quinoa*.
Quisco. See *Cereus quisco*.

Ragi. See *Eleusine coracana*.
Rhapis flabelliformis, 34745.
Rhus punjabensis sinica, 35109.
Ricinus communis, 34746.
Rollinia sp., 34764.

Rosa sp., 35110 to 35112.
  leschenaultiana. 34834.
Roscheria melanochoetes, 34833.
Rose (Italy), 35110 to 35112.
  (England), 34834.
Roystonea regia, 34747.

Sacred ear flower. See *Cymbopetalum penduliflorum*.
Saguerus pinnatus, 34748.
St. John's-wort. See *Hypericum hookerianum*.
Salvia sp., 35021.
Sansapote. See *Licania platypus*.
Sapindus sp., 34769.
Setaria italica. See *Chaetochloa italica*.
  lindenbergiana. See *Chaetochloa lindenbergiana*.
Sisyrinchium sp., 35022.
Soapberry. See *Sapindus* sp.
Soja max, 34977.
Solanum spp., 34866, 35023, 35045.
  chacoense, 34923.
  commersonii, 34921, 34922.
  tuberosum, 35024 to 35028.
Sorghum vulgare. See *Holcus sorghum*.
Soy bean. See *Soja max*.
Squash. See *Cucurbita* sp.
Sterculia acerifolia. See *Brachychiton acerifolium*.
  quadrifida, 34873.
Stevia rebaudiana, 34883.
Strawberry. See *Fragaria vesca*.
Swietenia macrophylla, 34914.

Tacsonia manicata. See *Passiflora manicata*.
Tamarisk. See *Tamarix* spp.
Tamarix kashgarica, 34780.
  pentandra, 34804.
Tantoon. See *Leptospermum flavescens*.
Tea. See *Thea sinensis*.
Thea sinensis, 34749, 34770.
Thunbergia alata, 34765.
Tindalo. See *Pahudia rhomboidea*.
Tobacco (Italy), 34752 to 34754.
  (Russia), 34820, 34821, 35078 to 35082.
Tomato, tree, 34974, 35096.
Tricholaena rosea, 35064, 35072.
Trifolium pratense, 34852.
Turmeric. See *Curcuma longa*.

Ulmus glabra suberosa, 34805.
Undetermined, 34750, 34751, 34766, 34884, 34913, 35029 to 35031.

Vetiver. See *Vetiveria zizanioides*.
Vetiveria zizanioides, 34730, 34928.
Vicia ervilia, 35061.
  faba, 35044.
Vigna sinensis, 34811, 34859, 34901, 34902, 34940.
Viola cornuta, 35131.
Violet, horned. See *Viola cornuta*.
Vitis henryana. See *Psedera henryana*.

Walnut. See *Juglans regia*.
Watermelon. See *Citrullus vulgaris*.
Wattle, cedar. See *Acacia elata*.
  golden. See *Acacia pycnantha*.
  mudgee. See *Acacia spectabilis*.

Xanthosoma sagittaefolium, 34854.
Ximenia caffra, 35043.

Yam. See *Dioscorea* sp.
  bean. See *Cacara erosa*.
Yangtaw. See *Actinidia chinensis*.
Yautia. See *Xanthosoma sagittaefolium*.

Zea mays, 34733.
Zephyranthes sp., 34993, 35032.
Ziziphus jujuba, 34874.
  sativa. See *Ziziphus jujuba*.
Zoysia pungens. See *Osterdamia matrella*.

○

Issued November 9, 1915.

U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF PLANT INDUSTRY.

WILLIAM A. TAYLOR, *Chief of Bureau.*

INVENTORY

OF

SEEDS AND PLANTS IMPORTED

BY THE

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION
DURING THE PERIOD FROM APRIL 1
TO JUNE 30, 1913.

(No. 35; Nos. 35136 TO 35666.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1915.

by Google

BUREAU OF PLANT INDUSTRY.

Chief of Bureau, William A. Taylor.
Assistant Chief of Bureau, Karl F. Kellerman.
Officer in Charge of Publications, J. E. Rockwell.
Chief Clerk, James E. Jones.

Foreign Seed and Plant Introduction.

SCIENTIFIC STAFF.

David Fairchild, *Agricultural Explorer in Charge.*

P. H. Dorsett, *Plant Introducer, in Charge of Plant Introduction Field Stations.*
Peter Bisset, *Plant Introducer, in Charge of Foreign Plant Distribution.*
Frank N. Meyer and Wilson Popenoe, *Agricultural Explorers.*
H. C. Skeels, S. C. Stuntz, and R. A. Young, *Botanical Assistants.*
Allen M. Groves, Nathan Menderson, and Glen P. Van Eseltine, *Assistants.*
Robert L. Beagles, *Superintendent, Plant Introduction Field Station, Chico, Cal.*
Edward Simmonds, *Superintendent, Subtropical Plant Introduction Field Station, Miami, Fla.*
John M. Rankin, *Superintendent, Yarrow Plant Introduction Field Station, Rockville, Md.*
E. R. Johnston, *Assistant in Charge, Plant Introduction Field Station, Brooksville, Fla.*
Edward Goucher and H. Klopfer, *Plant Propagators.*
Collaborators: Aaron Aaronsohn, *Director, Jewish Agricultural Experimental Station, Haifa, Palestine;* Thomas W. Brown, *Gizeh, Cairo, Egypt;* Dr. Gustav Eisen, *California Academy of Sciences, San Francisco, Cal.;* E. C. Green, *Serviço do Algodao Rio de Janeiro, Brazil;* A. C. Hartless, *Seharunpur Botanic Gardens, Seharunpur, India;* Barbour Lathrop, *Chicago, Ill.;* William S. Lyon, *Gardens of Nagtajan, Manila, P. I.;* Miss Eliza R. Scidmore, *Yokohama, Japan;* Charles Simpson, *Little River, Fla.;* Dr. L. Trabut, *Director, Service Botanique, Algiers, Algeria;* E. H. Wilson, *Arnold Arboretum, Jamaica Plain, Mass.*

CONTENTS.

	Page.
Introductory statement	5
Inventory	11
Index of common and scientific names	65

ILLUSTRATIONS.

		Page.
Plate I.	The Curuba melocoton (*Sicana odorifera*)	11
II.	A wild rose of western China (*Rosa soulieana*)	21
III.	A tree of the Vera variety of carob (*Ceratonia siliqua*)	26
IV.	Chinese jujube trees of the Tang, or Sugar, variety (*Ziziphus jujuba*)	29
V.	Fruiting branches of the che tree (*Cudrania tricuspidata*)	29
VI.	Edible acorns of the Chinese oak (*Pasania cornea*)	38
VII.	Dried fruits and nuts of the Australian quandong (*Mida acuminata*)	39
VIII.	The fruit of the Chinese edible haw (*Crataegus pinnatifida*)	47

INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM APRIL 1 TO JUNE 30, 1913 (NO. 35; NOS. 35136 TO 35666).

INTRODUCTORY STATEMENT.

It has been customary ever since these inventories were first begun in 1898 to review briefly the field work accomplished by explorers of the office during the period covered by the inventory and to point out some of the more interesting new plants which are described in it.

Any system, even a bad one, comes to have a certain historical value if it is maintained through a period of years. This one, which has as its object the recording of all department introductions of foreign plants, has now been in operation for 17 years, and to-day it will be an easy matter to trace any one of the new plants brought in either to its early death or to its success in some part of the country. The discovery of one of the department introductions as a large tree, for example, in some out-of-the-way part of the country can easily be traced back to the card record, which will show when it was sent out for trial and to what experimenter, and the printed note about it in one of these inventories will give the clue to its foreign origin. The constant use of these inventories by field experimenters has fully justified the expenditure necessary in order to bring about their publication, and while in the multigraphed advance sheets, called "Plant Immigrants," there appears from time to time mention of the apparently most important plant collections received, the presence of these printed inventories in the libraries of the country makes it possible to look up and find out the origin of any new plant introduced by the Government from any part of the world.

With the growing vigilance to prevent the introduction of new plant parasites, this system has appeared to be distinctly advantageous and can be safely recommended as a continuing policy. Should a parasite slip in through quarantine and be later discovered, practically every plant of that introduction could be located. Previous to its adoption many interesting new plants were brought in whose

---

NOTE.—This bulletin is a record of new or little-known seeds or plants procured mostly from abroad. It is intended for distribution to agricultural experiment stations and the more important private cooperators.

early history, so to speak, is shrouded in mystery, because nowhere was there recorded in any permanent form the historical account of their first introduction into the country. This system of printed inventories is therefore intended to be an orderly and clear method of making permanently available to the public the record of the introduction of thousands of new and more or less valuable plants which it is hoped will increase the welfare of the country in one way or another.

In the early days of plant exploration, particularly in Europe, the danger of introducing new parasites with new seeds and plants was not realized, and private firms and wealthy amateurs did a great deal of the work of plant introduction, either as public-spirited men or for profit. To-day, with the rapid increase in our knowledge of the diseases of plants, has come a new responsibility—that of making sure that no dangerous insect parasites or parasitic fungi are introduced with the plants. Furthermore, the work of securing new plants has proved on the whole a very unprofitable business to such private firms as have engaged in it, because of the great expense of maintaining explorers in the field and the difficulty of retaining control of a new plant long enough to make much out of it.

As the researches of the Government experts result in new methods for the disinfection of large quantities of plant material, this commerce is bound to grow, and it is even conceivable that general inexpensive methods will be discovered by which all kinds of parasitic diseases of plants can be killed on imported material as soon as it arrives in this country, so that only disease-free plant material will leave the quarantine stations of our ports.

The fragmentary nature of many of the notes in the inventory is to be regretted, but in general it must be said that this is the result of a failure on the part of many who send in material to grasp the plan of plant introduction as a whole; and since fresh field observations, even though they are incomplete, are more valuable than book knowledge, it has been deemed better to print these impressions fresh from the field than to give abstracts from books on horticulture and botany describing the plants.

There are a number of very interesting new introductions in this inventory, for it covers collections which Mr. Frank N. Meyer, agricultural explorer of the Bureau of Plant Industry, made in the Shantung Province of China, and some remarkable new potato varieties secured by Mr. W. F. Wight during his trip through southern Chile and Peru.

Mr. Meyer's collections enumerated in this inventory include a cultivated large-fruited variety of the Chinese haw (*Crataegus pinnatifida*), No. 35456, which in Mr. Meyer's opinion deserves the serious consideration of American horticulturists. It is a hardy tree, remarkably drought resistant. The fruit is of good flavor, and from it is made a unique preserve. The vigor and productiveness of our native hawthorn, the delicious character of the fruit of the Palestine species (*Crataegus azarolus*), and the hardiness and drought resistance of this cultivated Chinese species should suggest experiments in domestication and selection for the production of a fruit adapted to conditions other than those ideal for the apple and the pear.

The so-called wild pear (*Pyrus ussuriensis*), No. 35304, is perhaps the hardiest species of the genus to which the pear belongs, and, coming from Harbin, it will doubtless stand the cold of our extreme Northwest and prove of value to pear breeders there. Even as an ornamental it should be worth planting on the northwestern Great Plains.

Grape breeders seem to have done much in the crossing of our native species of Vitis, but it has remained for the Russian plant breeder Mijurin to make the cross between *Vitis riparia* and the wild grape of the Amur Valley, *Vitis amurensis*. This hybrid, No. 35306, Mr. Meyer reports, produces a small berry of good flavor. As to its hardiness, little seems yet to be known.

A sweet-fruited mountain ash, or rowan, another of Mijurin's productions, No. 35305, according to Mr. Meyer, ought to do well in Oregon.

Two new red currants, Nos. 35308 and 35309, one from the Amur region and one from the northern Altai Mountains, should possess unusual hardiness and be of interest to breeders.

The culture of the hazelnut or cobnut has made but little progress as yet in America, although it is an important industry in England and along the Mediterranean. *Corylus mandshurica*, from Harbin, No. 35288, a small, hard-shelled species, may bring increased hardiness and disease resistance into hybrids between it and the European species.

The growing interest of amateurs in the jujube, or Chinese tsao, makes the collection secured by Mr. Meyer in Shantung a matter of special importance. The trees of the seedless form, No. 35253, are ringed or girdled, in order to induce them to bear larger crops of fruit, sometimes doubling the crop. The scarlet jujube, Nos. 35255 and 35601, the fruits of which are as large as a small egg, and 10 of the best market varieties planted in large orchards in the Shantung Province, Nos. 35257 and 35601 to 35609, add 11 important numbers to our collection of this hardy drought-resistant new tree crop. *Ziziphus trinervia*, No. 35416, has been introduced as a possible tropical stock for the Chinese jujube.

The North China varieties of walnut (*Juglans regia sinensis*) have not been tested in America sufficiently, and Mr. Meyer thinks in the warmer valleys of the southern Rocky Mountain region they may do well. He has sent in four varieties, Nos. 35610 to 35613, one from Shantung Province and three from Peking.

The interest in muskmelons appears to be perpetual, notwithstanding the susceptibility which the plant shows to a change in its environment—a change, by the way, which the Chinese growers have recognized for many years. Thirteen varieties of seed (Nos. 35645 to 35657) from Shantung Province can hardly fail to be of interest to melon breeders.

Mr. Meyer discovered in use as a hedge plant *Cudrania tricuspidata*, No. 35258, the near relative of our ordinary Osage orange (*Toxylon pomiferum*), and the literature records the making in France of a true hybrid between these two species.

One of the results of Mr. W. F. Wight's trip over the Andes into Chile and Peru, on his return from employment for several months by the Government of Argentina, was the introduction of a collection of varieties of potato and wild forms of Solanum more or less nearly related to the potato. This collection, consisting of 79 numbers, 35491 to 35569, can scarcely fail to yield material of value for the breeders who are working with this staple crop. It includes the remarkable yellow potato with yellow flesh of excellent quality, a form distinct from anything we have.

Among the fine varieties of tropical papayas, Nos. 35582 to 35586, which were presented to this Government by the Belgian minister of colonies, from the Belgian Kongo, one at least shows unusual promise because of its small size, compact shape, and good quality. Nos. 35142 and 35143, the mountain papaya (*Carica candamarcensis*), have acid fruits and may be valuable for breeding purposes.

The Bogorodsky Experiment Field, in the Government of Kursk, and the Charkof Agricultural Selection Station, in Russia, have furnished 15 selected strains of clover which will interest the breeders of this forage crop, Nos. 35265 to 35279.

Five species of Hedysarum, Nos. 35444 to 35448, from Albano, Stockholm, have been sent by the director of the station there for use in the breeding of new forms of this forage plant, one species of which, sulla (*H. coronarium*), is an important forage crop in many Mediterranean countries.

Mr. C. F. Baker calls attention through his introduction of a truly edible tropical fig (*Ficus ulmifolia*), No. 35449, to the possibility of producing good figs for the Tropics.

A named collection of Javanese mangos, Nos. 35403 to 35412, presented by the Botanic Gardens of Buitenzorg, Java, including the wild species *Mangifera foetida* var. *mollis*, may assist in the solution of the mango problems of southern Florida.

Through the kindness of Dr. Bailey Willis, formerly of the United States Geological Survey, a collection of seeds of grasses has arrived from the Argentine Andes, south of Lago Nahuel Huapi. According to Dr. Willis these are mostly pasture grasses of which stock are fond, and as they come from regions where heavy summer frosts occur they may fit into northwestern conditions.

The quandong-nut tree of Australia, No. 35323; the evergreen oak tree (*Pasania cornea*) of Hongkong, having edible acorns, No. 35320; local Nigeria varieties of cotton, Nos. 35315 to 35317; a western Siberian form of sainfoin which has promise as a late fodder crop in dry regions with a short growing season, No. 35313; a strain of the yellow-flowered alfalfa (*Medicago falcata*), peculiar to the region about Omsk, Siberia, No. 35312; a low-spreading hardy juniper from Transbaikalia, Siberia, No. 35310; the Berna Late orange, exported in quantity from Murcia, Spain, No. 35247; the Medjoul, or Tafilet, date from Morocco, No. 35161; a new species of raspberry from western Szechwan, China, with golden-yellow fruit of good flavor and stems of unusual vigor, No. 35197; a tropical melon (*Sicana odorifera*) with scented flesh which makes excellent preserves, No. 35136; and a honeysuckle from Tibet which has proved hardy in the Arnold Arboretum, No. 35188, are additions to the experimental plant material which this inventory records as now being ready or soon to be at the disposal of the plant specialists of the country.

As heretofore, the inventory has been prepared by Miss May Riley, the botanical determinations of seeds introduced have been made and the notes on geographic distribution compiled by Mr. H. C. Skeels, and the descriptive notes arranged by Mr. S. C. Stuntz, who has also had general supervision of this inventory, as of all the publications of this office.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., June 15, 1915.

INVENTORY.

35136. SICANA ODORIFERA (Vell.) Naudin. **Melocoton.**

From Tampico, Mexico. Presented by Mr. Clarence A. Miller, American consul. Received April 2, 1913.

"*Calabaza melon.* There is only a small production of this fruit in this district. Excellent preserves are made from this fruit by the residents of this section." (*Miller.*)

"This large and beautiful cucurbit seems to belong to all the hot regions of South America. It is there regarded almost as an economic plant, and according to Triana is even cultivated in some regions. The traveler Piso, as early as 1658, mentioned its principal uses, among others that which was made and which is still made of the remarkably odorous fruits for perfuming linen and clothing and perhaps for driving away moths. He tells us also that the fruits are edible, but are rarely eaten raw. According to Hasskarl, the Spanish of Peru give it the name *Olorero* because of its penetrating odor. In another locality in the same country it is known under the name of *Sicana*, which I have used as a generic name. It is therefore probably cultivated, since three varieties are distinguished under the name *Sicana colorado*, *S. amarilla*, and *S. negra*, according as the fruit is red, yellow, or greenish black, which would surely not be the case if the plant were left entirely to the wild state. In New Grenada it bears the name of *Melocoton*, which is that of the peach in Spanish, without doubt as an allusion to the odor of the fruit, which has been compared to that of the peach.

"The genus Sicana is very near Cucurbita, to which Velloso and Hasskarl have joined it. In Sicana the anthers are as wide or wider than long, besides they are entirely free, while their filaments are connected, which is precisely the opposite of what one sees in Cucurbita. If to this first difference one adds the peculiar direction of the calyx teeth, which are turned outward even in very young buds, the shortly campanulate form of the corolla, the total absence of the hairs which make all the species of gourds rough to the touch, the pronounced and most unconquerable tendency of the stem and branches to grow vertically, and finally the particular arrangement of the extremities of the tendrils, which attach themselves like cupping glasses to the most polished solid bodies, to which they adhere with force, one admits with me that Sicana could not be confounded with Cucurbita." (*Naudin, Annales des Sciences Naturelles, ser. 4, vol. 18, p. 181–184, 1862.*)

For an illustration of the melonlike fruit of the Mexican melocoton, see Plate I.

35137. PERSEA MEYENIANA Nees.

From central Chile. Presented by Sr. Salvador Izquierdo, who procured it through Sr. José D. Husbands, Limavida, Chile. Received March 29, 1913.

For previous introduction, see S. P. I. No. 28636.

35138. PERSEA MEYENIANA Nees.

From central Chile. Presented by Sr. José D. Husbands, Limavida, Chile. Received March 31, 1913.

"This is a rounder, more compact tree than the *Persea lingue*, grows in dryer, poorer soils. It is far better as a stock for *Persea gratissima*. The leaves are dark green on top, with a white, silken finish underneath." (*Husbands.*)

For previous introduction, see S. P. I. No. 28636.

35139 to 35141.

From Charlotte Amalie, St. Thomas, Danish West Indies. Presented by Dr. J. N. Rose, U. S. National Museum. Received March 17, 1913.

Quoted notes by Dr. Rose, except as otherwise specified.

35139. ABRUS PRAECATORIUS L. **Jequirity.**

"Normal form."

"A twining vine with alternate, abruptly pinnate leaves; leaflets small, linear oval, obtuse at apex and base, in 8 to 20 pairs; flowers pale purple to white, in axillary racemes; legumes oblong, compressed, containing 4 to 6 hard, glossy, scarlet seeds marked with a little black spot. Like many other leguminous plants, it is very sensitive to changes in the intensity of light, the leaflets hanging down vertically at night, as though asleep, and rising with the dawn. These movements are also caused in a measure by the overclouding and clearing of the sky. When ripe the pods burst open, displaying the pretty, bright-colored seeds, which are very conspicuous in the tangled undergrowth of the forest. The plant is of wide distribution in the Tropics.

"In India the seeds are used by the jewelers and druggists as weights, each seed weighing almost exactly 1 grain. The plant derived its specific name 'praecatorius' from the fact that rosaries are made of the seeds. The Germans call them 'Paternostererbse.' In many tropical countries they are made into necklaces, bracelets, and other ornaments.

"The seeds, known in pharmacy as jequirity beans, contain two proteid poisons, which are almost identical in their physiological and toxic properties with those found in snakes' venom, though less powerful in their effects. In India the seeds are ground to a powder in a mortar, into which the natives dip the points of their daggers and the wounds inflicted by daggers thus prepared cause death. When a small quantity of the powdered seeds is introduced beneath the skin fatal results follow; less than 2 grains of the powder administered in this way to cattle causes death within 48 hours. One of these poisons, called 'abrin,' is a toxalbumin. It is easily decomposed by heat, and in Egypt the seeds are sometimes cooked and eaten when food is scarce, though they are very hard and indigestible. The root has been used as a substitute for licorice." (*Safford, Useful Plants of Guam.*)

35140. ANNONA SQUAMOSA L. **Anona.**

"Only one tree said to grow on the island and that owned by Mr. Zadray Keating. Supposed African origin."

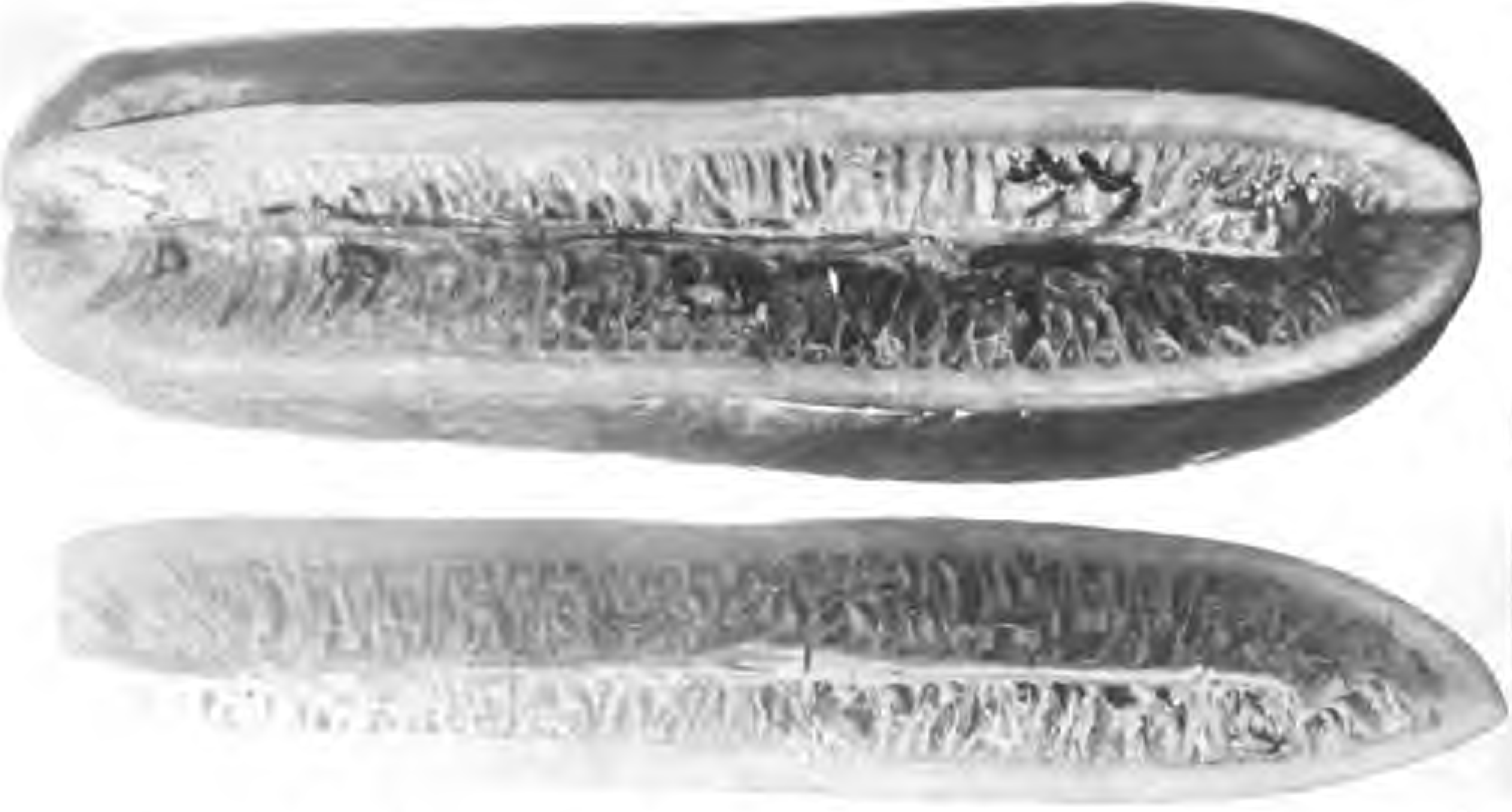
35141. COCCOTHRINAX GARBERI (Chapm.) Sarg. **Palm.**
(*Thrinax garberi* Chapm.)

"Teyer tree. A beautiful fan-leaved palm common in the Virgin Islands and much prized as an ornamental tree. I have never seen it in the States, although, of course, it may be quite common in the South or in California."

35142 and 35143. CARICA CANDAMARCENSIS Hooker f. **Mountain papaya.**

From Nice, Alpes-Maritimes, France. Presented by Dr. A. Robertson Proschowsky. Received February 17, 1913.

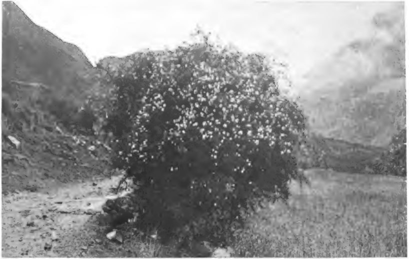
"Mountain pawpaw. A small semiherbaceous tree with a crown of large, coarse, palmate leaves, native of Colombia and Ecuador, similar to the pawpaw of the low country, but with fruit only about one-fourth or one-sixth the size of that of the latter. It has been introduced at Hakgala Gardens, Ceylon, in 1880, and is now commonly grown in hill gardens for the sake of its fruit, being often found in a seminaturalized



THE CURUBA MELOCOTON (SICANA ODORIFERA (VELL.) NAUD.) (S. P. I. NO. 35136.)

The fragrant odor of this melonlike fruit, reminding one faintly of the peach, is so remarkable that it is used for perfuming linen and clothing in South America and Central America. The inner portion is a deep orange color and is keenly relished by some in the raw state. When cooked, however, it makes a delicious preserve with a character quite its own. The plant is recommended for arbors, as it is a rank climber, often growing stems 50 feet long. Photograph (P10742FS), April 4, 1913.

PLATE II.



A WILD ROSE OF WESTERN CHINA (ROSA SOULIEANA CREPIN). (S. P. I. NO. 35200.)

This species forms a large bush 12 feet high and 18 feet across in its native habitat, western Szechwan. Its stems are light colored, its foliage delicate, even scanty, and it produces in abundance clusters of small white single flowers, which are followed by bunches of decorative orange-colored fruits. At Washington it has proved hardy in sheltered situations. It is a new species for the use of the rose breeders. Photograph (17139FS) taken at Kuan Chai, near Monkong Ting, western Szechwan, June 27, 1908, by E. H. Wilson, of the Arnold Arboretum.

state about upcountry bungalows. The ovoid angular fruit is in season all the year; though too acid to be used for dessert, it is very agreeable when stewed, and it can also be made into jam and preserves. When ripe the fruit has a pleasant applelike odor. Propagated by seed." (*H. F. Macmillan, Handbook of Tropical Gardening and Planting.*)

35142. "Larger than ordinary fruits."

35143. "Fruits varying in size but of excellent quality." (*Proschowsky.*)

35144. THEOBROMA CACAO L. **Cacao.**

From La Guaira, Venezuela. Presented by Mr. Thomas Voetter, American consul. Received April 5, 1913.

Secured for the experimenters of the Philippine Bureau of Agriculture.

35145 and 35146. KERSTINGIELLA GEOCARPA Harms. **Kandela.**

From Togoland, Africa. Presented by Mr. G. Hofflerner, Imperial Station, Sokode, Bassari, at the request of the director, Botanische Zentralstelle für die Kolonien, Dahlem post Steglitz, Germany. Received April 7, 1913.

35145. Black. **35146.** Reddish.

See S. P. I. No. 34916 for previous introduction and description.

35147 to 35160.

From Paris, France. Presented by the director, Museum of Natural History. Received March 28, 1913.

Seeds of the following:

35147. × ACER BOSCHI Spach. **Maple.**

See S. P. I. No. 33138 for previous introduction.

35148. ARALIA CHINENSIS MANDSHURICA Rupr.

"This species is perfectly hardy and will thrive anywhere in England, producing large and elegant foliage, which, however, falls at the first touch of frost. The stems, which are prickly, are quite hardy, and attain a height of 10 feet or so. When once established, this plant can be easily propagated by suckers which rise from the base. During the summer its appearance is considerably enhanced by the large trusses of flowers which, if not individually beautiful, give the plant a further subtropical appearance. As the leaves have a great spread when fully matured, an abundance of room must be allotted to the shrubs when planted, a matter which might be easily overlooked, as when denuded of their foliage one can hardly imagine them to be the same plant." (*The Garden, March 1, 1913.*)

35149. CORNUS BRETSCHNEIDERI L. Henry.

"The value of this Cornus consists in the color of its stems, which are pale yellowish green or even sometimes lemon yellow with reddish tips, which in winter produce a striking effect, seen against a background of dark evergreens." (*Journal de la Société Nationale de Horticulture de France, ser. 4, vol. 11, p. 123, 1910.*)

35150. ELAEIS GUINEENSIS Jacq. **African oil palm.**

"The bright-yellow drupe, with shiny black-purple point, though nauseous to the taste, is eaten by the people. The *mawezi*, or palm oil, of the consistency of honey, is rudely extracted, and forms an article of considerable traffic in the region around Lake Tanganyika. Despite its sickening flavor, it is universally

35147 to 35160—Continued.

used in cooking, and it forms the only unguent and lamp oil in the country. This fine palm is also tapped, as is the date in western India, for toddy, and the cheapness of this *tempo* (the *sura* of West Africa) accounts for the prevalence of intoxication and the consequent demoralization of the Lakist tribes. This is the celebrated palm oil, whose various official uses in Europe have already begun to work a social reformation in West Africa. The people of Ujiji separate by pounding the oily sarcocarpium from the one seed of the drupe, boil it for some hours, allow the floating substance to coagulate, and collect it in large earthen pots." (*Burton, Journal Royal Geographical Society, vol. 29, p. 219, 1859.*)

"To-day the exports of palm olive to Europe are among the largest of exports of any kind, requiring special steamer service. The oil is used extensively in the manufacture of soap and many other manufactured products. The palm has borne at Miami, Fla., but is not quite hardy there. See No. 35581." (*David Fairchild.*)

35151 to 35154. LYCOPERSICON ESCULENTUM Mill. **Tomato.**

These varieties of the tomato were received under the specific names given, two of which, *L. pyriforme* and *L. racemigerum*, are recognized in the Index Kewensis as good species, although in cultivation, according to Dr. D. N. Shoemaker, who has grown the plants, no specific differences from *L. esculentum* are evident.

35151. Received without variety name.

35152. "*L. cerasiforme* Dunal."

35153. "*L. pyriforme* Dunal."

35154. "*L. racemigerum* Lange."

35155. MALUS CERASIFERA Spach. **Apple.**

35156. MEDICAGO CARSTIENSIS Wulfen.

"A yellow-flowered Medicago from the Karst Mountains of Carniola. Perennial, with shiny-black depressed pod, and oblong-reniform yellowish seeds. Whole plant glabrous." (*Jacquin, Observationes.*)

35157 to 35160. SOLANUM NIGRUM L. **Nightshade.**

These varieties of nightshade were received in response to requests for all varieties obtainable of *S. nigrum*. They were received under the specific names given, although these are generally recognized as synonyms of *S. nigrum* or varieties thereof.

35157. *S. guineense* Lam.

35158. *S. miniatum* Bernh.

35159. *S. oleraceum* Dunal.

35160. *S. villosum* Mill.

35161. PHOENIX DACTYLIFERA L. **Date.**

From Algiers, Algeria. Secured through Dr. L. Trabut, Government Botanist of Algeria. Received April 5, 1913.

"This date, known to the Arabs as *El Medjoul*, but sold in the markets of Europe under the name *Tafilet*, comes from the Tafilelt (also written Tafilet and Tafilalet) region in southeastern Morocco. It is the finest variety in the Tafilet country, the fruits being 2 to 2½ inches long and three-fourths to 1 inch thick. They are semi-translucent, dark brown in color, and the flesh is rather firm in texture and of a most delicious flavor." (*Swingle.*)

35162 to 35171.

From Albano, Stockholm, Sweden. Presented by the director of the Botanic Gardens. Received March 31, 1913.

Seeds of the following:

35162. BERBERIS CRETICA L. **Barberry.**

"The flower raceme of this species is usually rather shorter than the leaves, the racemes generally being 3 to 8 flowered, and flower in spring. The leaves are oblong, reticulated, and the spines 3 to 5 parted. The species attains a height of 4 to 5 feet. Propagation may be effected by suckers or layers put down in the fall; by ripened cuttings, taken at the same time and planted in shady soil, in a cold frame; or by seed sown in the spring or preferably in the autumn when it is fresh from the pulp. They will germinate in the open in the following spring. The last-named method is generally adopted." (*Nicholson, Dictionary of Gardening.*)

35163. BERBERIS THUNBERGII MAXIMOWICZI Regel. **Barberry.**

"This plant is chiefly used as a hedge plant, and surely no worthier one for the purpose could be named, combining as it does a partly defensive character earned by its prickles, its close, neat growth, pretty leaves, and lovely scarlet berries. This Berberis is particularly effective when planted at an elevation where its scarlet berries can be seen to the best advantage. At Christmas time and throughout the winter, sprays of these berries interspersed with hardy and other graceful fern fronds arranged in a lily bowl make a graceful table centerpiece; this combination has the added value of remaining in good condition for several days." (*Florists' Exchange, December 10, 1910.*)

35164. CARAGANA ARBORESCENS CUNEIFOLIA (Dipp.) Schneid. **Siberian pea tree.**

"By this is understood a form which has more or less conspicuously wedge-shaped leaflets, short petioled leaves, and smaller fruit with seeds more or less spotted, which forms a shrub only 2 meters high. The formation of stipule thorns is greater, so that this form approaches *C. boisii* in many respects. However, more definite delimitation of the variety is at present questionable, inasmuch as the spontaneous forms are not cleared up. The leaf texture in degree of firmness and the more or less variable sharp relief of the veins apparently vary according to the nature of the location." (*Schneider, Laubholzkunde, vol. 2, p. 95.*)

35165. EREMURUS ROBUSTUS Regel.

"The finest Eremurus so far introduced, and an exceedingly vigorous plant, surpassed in stately magnificence only by its variety *elwesianus.* It is a plant one can not grow too well, for it prefers a deep, sandy loam, and appears to resent soils containing any quantity of chalk or lime, such as would grow *E. bungei* well. The rootstock has a conical crown (differing in this respect from *elwesianus*) set in a depression of the roots, which ascend abruptly as they leave the rootstock, the thongs being rigid and fleshy, not more than a dozen around each crown. The leaves are deeply channeled, pale green, 2 feet long or more, ascending for half their length, the tips always drooping when fully grown. The flower spikes are 8 to 10 feet high, stouter than a man's wrist when fully developed, bearing on the upper third a dense array of soft, pale-pink flowers, 1½ inches across each, the petals of which are broad and rounded, the anthers reddish, and the ovaries orange tinted. It is a splendid species, succeeding admirably in a shrubbery clearing and other sheltered place, where its growing

35162 to 35171—Continued.

spikes would receive some protection. The flowering spikes of *E. robustus* are among the first to appear, and they grow very quickly when once started; hence, it is not improbable that they may suffer from late frosts in the open border. For such open spaces the variety *elwesianus* is the better plant—it is later in pushing spikes, and slower in developing its spikes than *E. robustus*." (*G. B. Mallett, in Gardeners' Chronicle, March 4, 1905.*)

Distribution.—An herbaceous perennial with rose-colored flowers, found on the slopes of the Ala Tau Mountains at an elevation of 10,000 feet, in northern Turkestan.

35166. EREMURUS TURKESTANICUS Regel.

"It is not handsome; it has a loose spike with white flowers (greenish on the outside), short purple-black filaments, long red anthers; the pedicels are erect and very stout at the top; the capsule is glabrous, pyriform; the seeds gray, and larger than the brown seeds of *E. altaicus*." (*Madam Olga Fedtschenko, in Gardeners' Chronicle, June 10, 1905.*)

See S. P. I. No. 35130 for previous introduction.

35167. FAGOPYRUM TATARICUM (L.) Gaertn. **Buckwheat.**

35168. IRIS SPURIA L. **Iris.**

Forma *albiflora*.

No plant under this name is listed in W. R. Dykes's folio monograph, The Genus Iris, 1913, which see for discussion of the *spuria* question.

35169. IRIS SPURIA DESERTORUM Gawl. **Iris.**

"This is one of the most vigorous of all the forms of *Iris spuria*. The plants quickly grow into close masses of foliage from which emerge numerous stems. The individual flowers are small, but they are produced so freely that the whole effect is ornamental. The cultivation is extremely easy, for the plants seem to succeed in any soil. Moreover, the flowers are self-fertilizing and the seeds are produced in abundance." (*W. R. Dykes, The Genus Iris, p. 62, 1913.*)

35170. IRIS SPURIA × MONNIERI. **Iris.**

"The supposition that *I. monnieri* is only a form of *I. spuria* is supported by the fact that it is readily fertile to the pollen of the latter. The plants thus raised by Foster are known as *I. monspur* and are merely fine forms of *I. spuria* with flowers of some shade of blue-purple." (*W. R. Dykes, op. cit., p. 64.*)

"The culture of all the members of the *spuria* group is very simple. They will grow in almost any soil from the heaviest clay to the lightest sand, but seem to prefer a sunny position in a rather stiff loam well enriched with humus. When growth becomes active in the spring, the plants absorb a large amount of water, but seem to flower all the better the following year if the rhizomes are well roasted by the sun in the late summer after the flowering season. The seeds germinate fairly readily, but the growth of the young plants is comparatively slow, and though some may flower in their season (in two years, that is, from the time the seed germinated) yet the majority of them grow on for at least another year before the flowers appear." (*W. R. Dykes, op. cit., p. 58.*)

35171. LARIX KURILENSIS Mayr. **Kurile larch.**

"A tree up to 70 feet high, forming a stout trunk 2 to 2½ feet in diameter; young shoots very downy and dark brown, the down persisting the second season. Leaves one-half to 1 inch long, rounded at the end, very broad in proportion to their length, of a glaucous green, and with two conspicuous stomatic bands beneath. Cones about three-fourths inch long, oval-cylindrical, the scales with thin, slightly beveled, not reflexed, margins indented about

35162 to 35171—Continued.

the middle. Native of the Kurile Islands, especially on the main island (Iturup). It was at first regarded as a variety of *L. dahurica*, from which its broader leaves and persistently downy and much darker colored young shoots well distinguish it. It was introduced to Kew in 1897, from Japan. It is at present remarkable there chiefly for its curious, thin, lanky aspect, due to the scarcity of the elongated branches as compared with the short spurlike ones. This is probably due to want of vigor, but it is still one of the least promising of larches, probably needing colder winters and later springs than obtain in southern England." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 8.*)

35172. PHOENIX DACTYLIFERA L. **Date.**

Purchased from Barrow, Lane, & Ballard (Ltd.), London, England. Received April 19, 1913.

"*Tafilet.*"

See S. P. I. Nos. 34213 and 35161 for previous introductions and descriptions.

35173 to 35200.

From Paris, France. Presented by Mr. Maurice L. de Vilmorin. Received April 14, 1913.

One plant of each of the following:

35173. × ABIES VILMORINII Masters. **Spruce.**

"A remarkable hybrid (*A. pinsapo* × *cephalonica*), very beautiful, hardy, growing well in the same soils in which the parent species grow." (*Vilmorin-Andrieux & Cie., Catalogue, 1913–1914*).

"*Vilmorin's fir.* A hybrid between *A. cephalonica* and *A. pinsapo*, the latter the seed bearer. Only one fertile seed was produced, but from it was developed the fine tree at Verrières, near Paris, now about 50 feet high. Its leaves are intermediate, but more like those of *A. pinsapo;* they resemble those of *A. cephalonica* in having stomata on the lower surface only. The cross was made by the late Henri de Vilmorin in 1867. Many seedlings, mostly intermediate between it and one or other of the parents, have been raised at Verrières." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 120.*)

35174. ACER STERCULIACEUM Wallich. **Maple.**
(*Acer villosum* Wall.)

Distribution.—A large, handsome tree, found on the temperate slopes of the Himalayas at an elevation of 7,000 to 9,000 feet, from Kashmir to Nepal, in India.

35175. BETULA sp. **Birch.**

"From seed 4088 Wilson, collected near Tachienlu, western Szechwan, at about 11,500 feet altitude."

"A tree 30 to 75 feet tall, with a trunk 5 to 8 feet in girth, and gray bark." (*Wilson*).

35176. BERBERIS CAROLI HOANGHENSIS Schneider. **Barberry.**

"From seed 4022 Wilson."

"From upper Min Valley, Sungpan, western Szechwan, at an altitude of 9,300 feet, a salmon-red berried bush 4½ to 6½ feet tall." (*Plantae Wilsonianae, vol. 1, p. 368, 1913.*)

35173 to 35200—Continued.

35177. BUDDLEIA LINDLEYANA SINUATO-DENTATA Hemsl.

"From seed 1375 Wilson."

"From thickets, Yachou, western Szechwan, at an altitude of 2,000 to 4,000 feet, July and November, 1908. A tall bush 3 to 5 feet high, with very dark-red flowers and very large leaves, nearly 4 inches long and 2 inches wide." (*Plantae Wilsonianae, vol. 1, p. 564, 1913.*)

35178. CLEMATIS MONTANA WILSONII Sprague.
Forma *platysepala* Rehder and Wilson.

"From seed 1003 Wilson."

"From west of and near Wen-chuan Hsien, Szechwan, at altitudes of 5,200 to 9,000 feet. A white-flowered climber up to 16 feet." (*Plantae Wilsonianae, vol. 1, p. 334, 1913.*)

"*Clematis montana* Buch. is a somewhat polymorphic species widely spread in the Himalaya Mountains and in the mountains of western and central China. Var. *wilsonii* appears to be most nearly allied to a variety of *C. montana* from Hupeh with pink flowers, but, in addition to having white in place of pink sepals, the variety *wilsonii* differs from the variety *rubens* of our gardens in having less deeply cut leaflets. Like other members of the genus, *C. montana* var. *wilsonii* thrives in a rich, loamy soil which is all the better if of a calcareous nature. At Kew, where no lime is actually present in the soil, it is found very advantageous to many species of Clematis if slaked lime be added. Like the other varieties of *C. montana*, our plant produces its flowers from the nodes of the previous season's growth; it should therefore only be pruned after the flowers are past, and the shortening back of the shoots during the winter, so useful in the case of most Clematis, must here be avoided. Propagation can be readily effected by means of cuttings. The garden value of this variety is enhanced by the fact that it flowers at least two months later than the typical *C. montana* and about six weeks later than the variety *rubens*. The form is distinguished from the variety by its broadly obovate, rounded, or truncate sepals; the flowers are very round in shape and produced at the same time as the leaves." (*Botanical Magazine, pl. 8365, and Plantae Wilsonianae, loc. cit.*)

35179. COTONEASTER SALICIFOLIA Franchet.

"From seed 1133 Wilson."

"From thickets, Mupin, western Szechwan, at altitudes of 1,300 to 2,500 meters. A white-flowered, half-evergreen shrub 15 feet high with subglobose bright-red fruit with 2 or 3 stems, about 1½ to 3 inches long, one-fourth inch broad. Flowers in dense corymbs 1 to 2 inches across." (*Plantae Wilsonianae, vol. 1, p. 172, 1912.*)

35180. COTONEASTER sp.

"From seed 3444 M. Vilmorin."

35181. COTONEASTER sp.

"From seed 4294 M. Vilmorin."

35182. COTONEASTER sp.

"From seed 4619 M. Vilmorin."

35183. COTONEASTER sp.

"From seed 5916 M. Vilmorin."

35184. DEUTZIA VILMORINAE Lemoine and Bois. **Deutzia.**

"This species of Deutzia was found in western Hupeh by Mr. E. H. Wilson in June, 1900. The shrub has actually attained a height of 1½ meters and will

35173 to 35200—Continued.

probably reach a greater height before its full growing season is over. The leaves are long, petioles short, blades lanceolate, 8 centimeters in length, very finely dentate, with whitish teeth, velvety to the touch, very green on the upper surface, and pale greenish beneath." (*Fruticetum Vilmorinianum Catalogue, p. 125, 1904.*)

35185. Deutzia sp. **Deutzia.**

"From seed 6706 M. Vilmorin."

35186. Jasminum sp. **Jasmine.**

"From seed 4716 M. Vilmorin."

35187. Lonicera similis delavayi (Franch.) Rehder. **Honeysuckle.**
(*Lonicera delavayi* Franch.)

"A glabrous shrub with branches climbing to a considerable height. The leaves are broadly lanceolate, cordiform at the base, obtuse, pointed, or acuminate, ciliate, glabrous above, covered with a grayish tomentum below, measuring 4 inches long by 1½ inches broad above the base. The floral leaves are one-fifth as large. The flowers are yellowish white and have an agreeable odor. They are glabrous, with very slender cylindrical tubes 2 to 2½ inches long, with a bilobed limb three-fourths inch long. The fruit is bluish black, glaucous." (*Jour. Soc. Hort. France, ser. 4, vol. 1, p. 208, 1900.*)

See S. P. I. No. 34570 for previous introduction.

35188. Lonicera thibetica Bur. and Franch. **Honeysuckle.**

"A shrub from 0.5 to 1.5 meters in height, with slender spreading and recurving, often procumbent branches, forming a dense, intricate bush much broader than high; young branchlets villose-puberulous or tomentulose; older branches clothed with grayish-brown shedding bark. Flowers appear in May and June and sparingly during the whole summer and autumn. Fruit ripens in August and September. This Lonicera in the Arnold Arboretum proved hardy with slight protection during the winter and seems well suited for planting on rocky slopes and banks. The flowers are very fragrant, and the bright color of the berries makes the shrub ornamental in the autumn." (*Charles Sprague Sargent, Trees and Shrubs, vol. 1, p. 89, 1905.*)

35189. Lonicera sp. **Honeysuckle.**

"From seed 5032 M. Vilmorin."

35190. Lonicera sp. **Honeysuckle.**

"From seed 6872 M. Vilmorin."

35191. Malus sp. **Apple.**

"From Yunnan."

35192. Pinus sp. **Pine.**

"From seeds 6393 and 6610 M. Vilmorin, from Szechwan."

35193. Pyrus sp. **Pear.**

"From seed 6866 M. Vilmorin."

35194. Ribes himalayense urceolatum Jancsewski.

"This black-fruited shrub, from 2 to 3 meters high, is from Fang Hsien, western Hupeh. Was found growing in thickets at an altitude of 2,250 meters, September, 1907 and 1910." (*Plantae Wilsonianae, vol. 1, p. 44, 1911.*)

35195. Ribes sp.

"With large fruits."

35173 to 35200—Continued.

35196. Rosa multibracteata Hemsley and Wilson. **Rose.**

"From seed 1053 E. H. Wilson."

"A hardy species with pretty pink flowers from the valley of the Min River, western Szechwan." (*Wilson.*)

"A bush rose about 6 feet high, closely related to *R. webbiana*, but differs in its more crowded inflorescences, more numerous lanceolate bracts, fewer carpels, and longer styles. Flowers pink, one-half to three-fourths inch across in narrow terminal thyrsoid panicles. Fruit red, globose." (*Hemsley and Wilson, Kew Bull. Misc. Inf., 1906, p. 157.*)

35197. Rubus biflorus quinqueflorus Focke. **Raspberry.**

"This is one of the most striking of all the brambles introduced by Mr. Wilson. He collected seeds in west Szechwan, southeast of Tachien-lu, at an altitude of 5,000 to 6,000 feet. The growths are particularly strong, being 12 feet in height, and the stems 4½ inches in circumference at the base. The waxy white bloom on the stems is a particularly striking feature. They are armed with large, stiff spines, one-half inch in length. The leaves are pinnate, about 1 foot in length, and generally consist of five leaflets, which are white beneath and green above. The flowers are white, three-fourths inch in diameter, being borne in terminal and axillary panicles of about five flowers. The fruit is a rich, golden-yellow color, equal in size to those of most of our cultivated raspberries, and of a good flavor. This species, so far as I am able to judge, is likely to prove the most useful of the Chinese raspberries to the hybridist for raising new fruits." (*Gardeners' Chronicle, March 9, 1912.*)

35198. Spiraea henryi Hemsl.

"From seed 4327 E. H. Wilson. From Pan-lan-shan, west of Kuan Hsien, Szechwan, at altitudes of 9,000 to 10,000 feet. A bush 7½ to 11 feet high." (*Plantae Wilsonianae, vol. 1, p. 447, 1913.*)

"Shrub, of lax, spreading habit, 7 to 8 (perhaps more) feet high; branches sparsely pilose the first season, glabrous or nearly so the second. Leaves on the barren shoots 2½ to 3½ inches long, oblanceolate, glabrous or slightly pilose above, tomentose beneath, coarsely dentate near the apex; those of the flower shoots smaller, three-fourths to 1½ inches long, obovate or oblong, usually with three to seven teeth at the apex, but occasionally entire. Flowers one-fourth inch in diameter, produced in compound corymbs 2 inches across, which are terminal on short twigs springing from the branches of the previous year; peduncles and pedicels pilose. Petals white, orbicular. Calyx with five triangular lobes. Ovary pilose, 2 ovuled. Fruit in corymbs; carpels 5, one-eighth inch long when mature, membranaceous, dehiscing ventrally." (*Botanical Magazine, pl. 8270.*)

35199. Viburnum betulifolium Batalin.

"From seed 5924."

"A deciduous shrub with glabrous branches and branchlets purple or purplish brown during their first and second years, later becoming marked by longitudinal fissures. Apparently most closely related to *V. wrightii* Miquel, but differs chiefly in the presence of stipules, in the more coarsely serrate-ovate or rhombic-ovate leaves, with fewer veins, and in the glandular and hairy ovary. As an ornamental shrub will probably be as valuable as *V. wrightii*, and will doubtless be a handsome object in flower and in fruit." (*Rehder, Trees and Shrubs, vol. 2, p. 99, 1908.*)

35173 to 35200—Continued.

35200. Rosa soulieana Crepin. **Rose.**

"*Rosa soulieana* is one of the most desirable of the single white roses, both in flower and fruit. It differs from *R. moschata* in the smaller leaves, usually oval leaflets rounded at both ends, shortly stalked glands on the peduncles, and in the shorter tails of the sepals. It is a very robust species of suberect habit, forming bushes at least 8 feet high and as much through, armed with curved prickles or with straight ones on the barren branches. Leaves pale green, usually with seven leaflets, the largest 4 inches long, usually 2½ to 3 inches long. Leaflets oval, ovate or ovate-oblong, rarely more than 1 inch long, minutely serrate, axis usually furnished with a few small prickles. Stipules adnate, acute, with marginal glands. Flowers ivory white, about 1½ inches across, very numerous, in compound, dense, terminal corymbs, or sometimes solitary on short lateral branches. Peduncles slender, slightly glandular. Calyx lobes shortly tailed, entire or furnished with a few small teeth. Petals emarginate. Ovaries plose; styles connate. Fruit orange-vermilion, ovoid, or nearly globose, a little over one-half inch in its greatest diameter." (*Hemsley.*)

"One of the most vigorous of all roses, this new Chinese species is, in consequence, better adapted for semiwild places than it is for the trimly kept parts of the garden. On young plants the growths of a single year are sometimes 10 to 12 feet long. In June, when its numerous clusters of white flowers are open, it is very beautiful, as it is again in the autumn, when the clusters of small fruits have turned a soft red. But apart from these, the luxuriant mass of smooth gray foliage out of which are thrust the long arching shoots of the year is in itself attractive. Roses are notoriously gross feeders, and *R. soulieana* is not one of the exceptions. It should be planted in good, rather heavy loam, in a position fully exposed to the sun, with abundant space to grow in." (*W. J. Bean, Botanical Magazine, pl. 8158.*)

For an illustration of this rose bush in bloom, showing its habitat in China, see Plate II.

35201. Amygdalus persica L. **Peach.**
(*Prunus persica* Stokes.)

From Mengtsz, Yunnan, China. Presented by the Commissioner of Customs. Received June 2, 1913.

"Seeds of Mengtsz white peach and yellow free peach. This fruit is grown all over this province and occasionally attains an enormous size, and in that respect could easily compete with the best French peaches. The quality is somewhat inferior, but no care is taken of the trees as is done at home, and I am sure if one could graft good species one should obtain better results. Mengtsz is about 4,500 feet above sea level." (*Extract from the Commissioner's letter dated April 17, 1913.*)

These were received without labels, and one number was assigned to the lot.

35202. Brassica balearica Persoon.

From Dublin, Ireland. Presented by the Royal Botanic Garden, Glasnevin. Received March 24, 1913.

Introduced for the work of Dr. D. N. Shoemaker in breeding experiments with various species of Brassica.

Distribution.—A wild mustard found in the Balearic Islands, east of Spain.

35203 and 35204.

From Tangent, Oreg. Purchased from Mr. J. E. Jenks. Received April 11, 1913.

35203. LATHYRUS TINGITANUS L. **Tangier pea.**

35204. VICIA ATROPURPUREA Desfontaine. **Vetch.**

"Purple."

Distribution.—The countries of northern Africa and southern Europe bordering on the Mediterranean Sea.

35205 to 35209.

From Tiflis, Caucasus, Russia. Presented by the director, Botanic Gardens. Received April 7, 1913.

35205. AMYGDALUS FENZLIANA (Fritsch) Korsh.
(*Prunus fenzliana* Fritsch.)

See S. P. I. No. 27302 for previous introduction and description.

35206. AMYGDALUS NANA L.
(*Prunus nana* Stokes.)

"A low, deciduous shrub of bushy form, 2 to 5 feet high; twigs smooth. Leaves obovate or oblong, 1½ to 3½ inches long, one-half to 1 inch wide, saw toothed, dark glossy green above, pale beneath, smooth on both surfaces. Flowers one to three on each bud of the previous year's shoots, rosy red, one-half inch long, one-half inch or more in diameter. Fruit like a small almond, 1 inch long, covered with velvety down; not often produced in England. Native of southern Russia and the other parts of southeast Europe; long cultivated in England (Aiton says since 1683). It is a very pretty shrub, flowering abundantly in April, growing well on its own roots, and easily increased by layering. In spite of this, it is frequently grafted on plum, and is short lived in consequence." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 245.*)

35207. MEDICAGO SATIVA GLUTINOSA (Bieb.) Urban.

"The leaflets of this species of Medicago vary from 8 to 12 millimeters in length and 5 to 7 millimeters in width. They are obovate, irregularly toothed at the apex, base entire and wedge shaped, pubescent beneath. The calyx and flower stalks are glandular and hairy. The flowers, mostly 8 to 11 millimeters long, are golden yellow in color and sometimes change to a bluish tint. The pod consists of 1 to 2½ windings and is 4½ to 6 millimeters in diameter." (*P. L. Ricker.*)

35208. PINUS ELDARICA Medv. **Pine.**

"An erect pine 40 to 50 feet high from central Transcaucasia near the Eldar desert, in the Eilaroougi cliffs on the right bank of the River Jora. Near to Caucasian species, but distinguished by the shorter leaves and an apophysis of greater convexity. Differs from *P. brutia* Ten. in its shorter leaves and in having its strobiles solitary or verticillate in clusters of two to four; from *P. halepensis* Mill. in its more thick and rigid leaves and in having the peduncles of the strobiles erect spreading, not reflexed." (*Medviedev, Trudii Tiflis Botanic Garden, vol. 6, pt. 2, p. 21, 1902.*)

35209. SOLANUM NIGRUM L. **Nightshade.**

"*S. chlorocarpon* Spenn."

For previous introductions, see S. P. I. Nos. 35157 to 35160.

35210. ALEURITES FORDII Hemsley. Chinese wood-oil tree.

From Hankow, China. Purchased through L. C. Gillespie & Sons, New York City. Received at the Plant Introduction Field Station, Chico, Cal., April 9, 1913.

35211. CUCUMIS MELO L. Muskmelon.

From Callao, Peru. Presented by Mr. Luther K. Zabriskie, deputy consul. Received April 14, 1913.

"Grown in the valley of Ica, in the south-central part of Peru. Is oblong and about the size of the ordinary watermelon, measures about 14 by 8 inches. Has a yellow smooth skin, thin rind, and possesses a rich flavor." (*Zabriskie.*)

35212. MELICOCCA BIJUGA L. Honeyberry.

From Caracas, Venezuela. Presented by Mr. H. Pittier, of the Bureau of Plant Industry. Received April 18, 1913.

"The tree grows here from sea level to an altitude of about 1,000 meters. The fruit is called *mamon*, and there are at least two varieties." (*Pittier.*)

"A large tree, native of Trinidad and tropical South America, 40 to 50 feet high; leaves pinnate; flowers very numerous, small, fragrant; fruit green, size of pigeon's egg; pulp edible, of a sweet, subacid, slightly astringent taste. Nuts in Caracas are roasted and eaten like chestnuts." (*Fawcett, Economic Plants.*)

35213. HOLCUS SORGHUM L. Sorghum.
(*Sorghum vulgare* Pers.)

From Cedar Falls, Iowa. Purchased from Morgan Brothers. Received April 14, 1913.

"*Early amber.*"

35214 and 35215. PASSIFLORA sp. Passion fruit.

From Rio de Janeiro, Brazil. Presented by Dr. J. C. Willis, director, Botanic Garden. Received April 15, 1913.

35214. **35215.**

"They say that this is the species which occurs in two varieties." (*Willis.*)

35216 to 35221. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. Adzuki bean.

From Morioka, Japan. Presented by Rev. Henry Topping, American Baptist Foreign Mission Society. Received March 15, 1913.

35216. *Chu nagon adzuki.* Dark red.

35217. *Dai nagon adzuki.* Large dark red.

35218. *Goinojo adzuki.* Gray.

35219. *Kuro adzuki.* Black.

35220. *Murasaki adzuki.* Purple.

35221. *Shiro adzuki.* Green.

35222. VICIA FABA L. Broad bean.

From Callao, Peru. Presented by Mr. Luther K. Zabriskie, deputy consul. Received April 14, 1913.

"*Havas.* A bean that is grown in the southern part of Peru along the coast. It is used by the Peruvians in soup, etc. After the bean has been boiled, the outside skin has to be removed before eating. Has a slight bitter taste. Greatly relished by most people." (*Zabriskie.*)

35223. DIOSPYROS KAKI L. f. **Persimmon.**

From Seoul, Chosen (Korea). Presented by Mr. George H. Scidmore, American consul general. Received April 23, 1913.

"Scions cut from a persimmon tree of the 'sheep-nose' variety on the compound of this consulate general." (*Scidmore.*)

For previous introduction, see S. P. I. No. 34697.

35224 to 35226. PHASEOLUS spp. **Bean.**

From San Salvador, Salvador. Presented by Mr. Thomas Hinckley, American consul general, who procured them through the Sociedad Nacional de Agricultura, Ganadería, é Industrias, of Salvador. Received March 17, 1913.

"The red and black *Sinete* beans were grown at an altitude of 2,200 feet, where the average rainfall is between 50 and 60 inches and where the temperature during the year ranges from 33° to 15° C. I was further informed that these beans are produced with the best results at an altitude of 1,000 to 3,000 feet, where the rainfall is between 36 and 72 inches. These beans are planted in the month of May and ripen the following November. They are sown at the same time as Indian corn, the proportion being about 1 pound of beans to 8 pounds of corn. Two or three seeds are sown in the same hill with the corn, every other furrow being left fallow. They grow rapidly and mature before the corn.

"The *Ayeco* beans were grown at an altitude of somewhat over 3,000 feet, where the rainfall is heavier and the temperature lower than that above mentioned. They should be grown at an altitude of above 3,000 feet, where the rainfall is heavy, and should be planted in very rich soil, preferably on land that has been recently cleared and burned, where there would be an excess of potash. This bean is also planted in May, but does not ripen until the following December. They are planted in the same manner as the *Sinete*, except that four or five seeds are sown and two intervening furrows are left fallow. This species matures later than the corn." (*Hinckley.*)

35224. PHASEOLUS COCCINEUS L.

"*Ayeco.* A very interesting type of scarlet runner, probably of little economic importance for this country." (*D. N. Shoemaker.*)

35225. PHASEOLUS VULGARIS L.

"*Black Sinete.*"

35226. PHASEOLUS VULGARIS L.

"*Red Sinete.*"

35227. MISCANTHUS JAPONICUS (Thunb.) Oersted. **Zebra grass.**

From San Giovanni a Teduccio, Naples, Italy. Purchased from Dammann & Co. Received April 25, 1913.

"This grass, which is a very common ornamental growing on some of the poorest soils in the District of Columbia and Maryland, produces very fine paper fiber when cooked by the soda process. It resembles esparto fairly closely and is regarded as a promising source of paper fiber." (*C. J. Brand.*)

Procured for paper-plant investigations.

35228 and 35229.

From San Salvador, Salvador. Presented by Mr. Thomas Hinckley, American consul general. This material was procured at the request of Mr. R. T. Ruiz. Received April 24, 1913.

35228. PHASEOLUS VULGARIS L. **Bean.**

"Little white bean of Salvador that is so vastly superior to all the white beans in cultivation in this country for several reasons, the most remarkable being

35228 and 35229—Continued.

the almost entire absence of the hull or pellicle so disgusting in the navy bean and in the black-eye pea, the tenderness of the bean, which is more tender than the black-eye pea, and the flavor, entirely distinct from any other bean that I have seen in the world, a flavor that is never forgotten once you taste it." (*R. T. Ruiz.*)

35229. ZEA MAYS L. **Corn.**

"The black Indian corn which is so extensively used in Salvador for making a refreshing beverage and is claimed to be medicinal for bladder troubles. It is surely a most pleasing corn, and the natives often roast it and use it in place of coffee." (*R. T. Ruiz.*)

35230. CERATONIA SILIQUA L. **Carob.**

From Valencia, Spain. Presented by Mr. Claude I. Dawson, American consul. Received April 28, 1913.

"Red-flowered male."

Cuttings.

See S. P. I. No. 30916 for previous introduction and description.

35231. PERSEA PUBESCENS (Pursh) Sarg.
(*Persea carolinensis* Nees.)

From Newbern, N. C. Presented by Dr. C. A. Schenck, director, Biltmore Forest School, Biltmore, N. C. Received April 28, 1913.

"North Carolinian Persea from the swamps near Newbern." (*Schenck.*)

Plants.

35232. BLIGHIA SAPIDA Koenig. **Akee.**

From Jamaica, British West Indies. Presented by Mr. W. Harris, superintendent of Public Gardens, Hope Gardens, Kingston, Jamaica. Received April 26, 1913.

See S. P. I. Nos. 24592 and 32351 for previous introductions and descriptions.

35233. (Undetermined.)

From Berlin, Germany. Presented by the Berlin Botanic Gardens. Received April 25, 1913.

35234. CARAGANA ARBORESCENS Lamarck. **Siberian pea tree.**

From Indian Head, Saskatchewan, Canada. Purchased from Mr. Norman M. Ross, Chief of Tree Planting Division, Forestry Branch, Department of the Interior. Received April 30, 1913.

Numbered for convenience in handling, and sent to the Mandan Field Station for trial.

35235. LAPAGERIA ROSEA Ruiz and Pavon. **Copigué.**

From Chelsea, London, England. Purchased from James Veitch & Sons (Ltd.), at the request of Mr. Frederick V. Coville, of the Bureau of Plant Industry. Received April 30, 1913.

"The plants of *Lapageria rosea* were requested in order that they might be tested with reference to their ability to thrive in the same acid, peaty soil that has been found so successful for the culture of the blueberry and various plants in other families which do not thrive in ordinary potting soils and which, therefore, have the reputation of being difficult to grow. It has been found that these plants, although they were seriously injured during inspection, revived when planted in the blueberry soil, made good growth, and later developed their remarkably beautiful cherry-red, silver-spotted, lilylike flowers, 3 inches in length." (*Coville.*)

35236. MUSA ENSETE Gmelin. **Wild banana.**

From M'Cale Sana, Lumbwa, British East Africa. Presented by Mrs. Ernest Smith. Received March 30, 1913.

35237. ASTRAGALUS FALCATUS Lamarck.

From Paris, France. Purchased from Vilmorin-Andrieux & Cie. Received April 29, 1913.

35238 to 35242. CERATONIA SILIQUA L. **Carob.**

From Valencia, Spain. Presented by Mr. Claude I. Dawson, American consul. Received from April 29 to May 5, 1913.

Cuttings of the following:

35238. "*Casuda.*"

See S. P. I. No. 30915 for previous introduction and description.

35239. "*Matlafera.*"

See S. P. I. No. 30914 for previous introduction and description.

35240. "*Vera.*"

See S. P. I. No. 7060 for previous introduction and description.

For an illustration of the Vera carob tree in full foliage as found growing in Spain, see Plate III.

35241. "*Hermaphrodite.*"

See S. P. I. No. 30919 for previous introduction and description.

35242. "*Yellow-flowered male.*"

See S. P. I. No. 30917 for previous introduction and description.

35243. CANANGIUM ODORATUM (Lam.) Baillon. **Ylang-ylang.**
(*Cananga odorata* Hook. f. and Thom.)

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received April 14, 1913.

"A large evergreen tree of the family of Annonaceae, native of Burma, but extended by culture to Java and the Philippines. An agreeable and highly valuable perfume known as ylang-ylang is distilled from the flowers. Should succeed in southern Florida and the warm portions of the Gulf coast." (*Dr. W. Van Fleet.*)

"The war correspondent Mr. James Creelman called our attention several years ago to the possibility of growing this flower in Florida and shipping it to the northern markets as is now done with the gardenia." (*Fairchild.*)

35244 to 35246. CERATONIA SILIQUA L. **Carob.**

From Valencia, Spain. Presented by Mr. Claude I. Dawson, American consul. Received April 29 to May 5, 1913.

Cuttings of the following:

35244. "*Flor de Altramuz.*"

35245. "*Roja Vera.*"

35246. "*Roja Vera.*"

See S. P. I No. 30918 for previous introduction and description.

35247. CITRUS sp. **Orange.**

From Algiers, Algeria. Presented by Dr. L. Trabut, Government Botanist of Algeria. Received May 7, 1913.

"Cuttings of the late Berna orange, which you may name *Berna Late*. This is the object of important export from Murcia, Spain, during the summer. Fruit globular oval, medium in size, skin very solid, assuring its preservation." (*Trabut.*)

35248. THEA SASANQUA (Thunb.) Nois. **Tea oil.**

(*Camellia sasanqua* Thunb.)

From Chenchow, Hunan, China. Presented by Mr. T. W. Mitchell. Received April 30, 1913.

"The trees are very curious in that, just as they are harvesting the nuts, the trees are in full bloom for the following year's crop. It produces a vegetable oil very much used for food by the natives and which we ourselves like very much." (*Mitchell.*)

Distribution.—The vicinity of Nagasaki in Japan, in the Chusan and Luchu Archipelagoes.

35249. GONOLOBUS EDULIS Hemsley. **Cuayote.**

From San Ramon, Costa Rica. Presented by Mr. Ad. Tonduz, botaniste explorador. Received May 9, 1913.

"An asclepiadaceous twiner with yellow flowers in small racemes, and long fruits, pointed at both ends, provided with longitudinal wings. The fruit is eaten while still soft." (*Tonduz.*)

35250. CITRULLUS VULGARIS Schrader. **Watermelon.**

From Argentina. Presented by Mr. T. A. Havemeyer, New York, N. Y. Received April 26, 1913.

"Seeds of a watermelon brought me by a friend from Argentina, said to be very good and to have an orange center. It may be of value." (*Havemeyer.*)

35251. CANNABIS SATIVA L. **Hemp.**

From Hankow, China. Procured through Mr. Roger S. Greene, American consul general. Received April 25, 1913.

"*Ta ma*, the great hemp of China, is cultivated chiefly in central China, in the valley of the Yangtze. It attains a height of 8 to 15 feet, has comparatively large leaves, less crowded than the foliage of the common hemp of Europe, and its seeds are comparatively small, dark, and well mottled.

"Seeds from hemp of this variety have given the best results when cultivated in Kentucky. The seeds should always be acclimated by cultivating the plant one or two generations for seed production before sowing it broadcast in this country for fiber production." (*L. H. Dewey.*)

35252. BRACHYPODIUM PINNATUM (L.) Beauv.

From Paris, France. Purchased from Vilmorin-Andrieux & Cie. Received May 2, 1913.

Distribution.—Throughout Europe and eastward to Siberia and Persia; also in northern Africa.

Purchased for the work of the Office of Forage-Crop Investigations.

35253 to 35262.

From Laoling, Shantung, China. Secured by Mr. Frank N. Meyer, agricultural explorer. Received at the Plant Introduction Field Station, Chico, Cal., May 9, 1913.

Cuttings or rooted plants of the following:

35253 to 35257. ZIZIPHUS JUJUBA Miller. **Jujube.**
(*Ziziphus sativa* Gaertn.)

35253. From Laoling, Shantung, China. "(No. 1021, March 30, 1913.) A variety of jujube, called *Wu hu tsao* or *Ya tsao*, bearing fruits which are either perfectly seedless or, if not, having such a soft kernel that one does not notice it when eating the fruit. The trees of this variety do not grow very old or to any large size; they possess but few spines and sucker only moderately. It is the custom in the Laoling district to ring the trees every year, just when the fruit is setting, by means of sawing through the bark of the trunk, starting the first ring a few inches above the ground and leaving a space of about three-fourths of an inch between the successive rings. They start the ringing when the trees are 6 or 7 years old and continue it for 20 to 30 years, after which time the tree generally dies and is removed. The reason for this ringing process is the fact that a tree which is ringed produces almost twice as much fruit as an unringed one, although the fruits of the latter are much sweeter. These seedless jujube fruits are generally steamed shortly after they have been collected; then they are dried again and in this state they are kept throughout the whole winter until the next summer. With the Chinese fruit growers themselves they are not as great favorites as one would suspect. This is accounted for by their lack of sweetness and the steaming process they have to undergo, while the ordinary varieties are much sweeter and can be eaten straightaway. To the western palate, however, they appeal strongly and bear some comparison to an intermediate flavor between raisins and candied citron rind. They can be served as sweetmeats by themselves or mixed with peanuts; they can also be stewed with millet or rice, and compotes and cake fillings can be made from them and in all their various forms they are quite acceptable. When once successfully growing in the United States, attempts should be made to cross this variety with the larger fruited forms, so as to obtain more variation in the size of the fruit." (*Meyer*.)

35254. From Laoling, Shantung, China. "(No. 1022, March 30, 1913.) A variety of jujube, called *Wu hu tsao*, or *Ta tsao*, coming from a different locality than the preceding number; otherwise the same remarks apply to it." (*Meyer*.)

35255. From Laoling, Shantung, China. "(No. 1023, March 30, 1913.) A variety of jujube, called *Tze lin tsao*, meaning 'scarlet jujube.' Fruits as large as small eggs. The trees are of rather dense growth, possess many slender branches, and the young wood is quite spiny. These trees are not ringed. This variety is but sparingly cultivated, as it seems to produce very few suckers." (*Meyer*.)

35256. From Laoling, Shantung, China. "(No. 1024, March 30, 1913.) A variety of jujube, called *Tang tsao*, meaning 'sugar jujube.' The fruits are large, of very elongated shape, and thinner in the middle than at both ends. Trees of vigorous growth, having many branches, which are spiny when young. A rare variety, which is not ringed." (*Meyer*.)

35253 to 35262—Continued.

For an illustration of the jujube tree of the Tang variety, as found growing in China, see Plate IV.

35257. From Laoling, Shantung, China. "(No. 1025, March 30, 1913.) A variety of jujube, called *Hsiao tsao*, meaning 'small jujube.' The trees do not grow large, possess but few spines, and are very productive. When over 40 years old, however, they cease to bear paying crops. The fruits are of a bright brown-red color, are small in size, but they are very sweet and much beloved by the people, who have big orchards of them. This variety is ringed in the same way as the seedless jujube." (*Meyer.*)

35258. CUDRANIA TRICUSPIDATA (Carr.) Bureau. **Che.**
(*Maclura tricuspidata* Carr.)

From Laoling, Shantung, China. "(No. 1026, March 30, 1913.) A wild shrub, sometimes growing into a small tree, found in dry places. Called by the Chinese *Tcho sang*, which means 'wild mulberry.' The leaves are used for feeding silkworms in times of scarcity of mulberry leaves. This plant makes an impression similar to the Osage orange, but is of much smaller dimensions. Can be utilized in the drier parts of the United States as a hedge plant around gardens and as fence material on farms, while it also can be employed for bank-binding purposes in the milder, semiarid sections. This shrub is very thorny and can serve therefore very well for hedge purposes." (*Meyer.*)

Rooted plants. "Plants of this same species (S. P. I. No. 34493) introduced by Mr. E. H. Wilson have fruited at Augusta, Ga., in the nurseries of P. J. Berckmans Co., and the fruit is sweet and edible. It is closely related to our native Osage orange, *Toxylon pomiferum* (*Maclura aurantiaca*), and has been hybridized with it. There are other edible-fruited species also, so this introduction opens up a most interesting field for the breeder." (*Fairchild.*)

For an illustration of the edible fruit of the che tree, showing its manner of growth upon the branches, see Plate V.

35259. AILANTHUS CACODENDRON (Ehrh.) Schinz and Thellung.
(*A. glandulosa* Desf.) **Tree of heaven.**

From Laoling, Shantung, China. "(No. 1027, March 30, 1913.) Variety *umbraculifera*. A variety of the tree of heaven, which grows much more compactly and bears fewer seeds than the ordinary variety. To be tried especially in the drier parts of the United States." (*Meyer.*)

Rooted plants.

35260. ZIZIPHUS JUJUBA Miller. **Jujube.**
(*Ziziphus sativa* Gaertn.)

From Laoling, Shantung, China. "(No. 1028, March 30, 1913.) Coming from the same trees from which the scions under No. 1021 (S. P. I. No. 35253) were taken." (*Meyer.*)

Rooted plants.

35261. TAMARIX sp. **Tamarisk.**

From Laoling, Shantung, China. "(No. 1029, March 31, 1913.) A tamarisk occurring on sandy and alkaline lands here and there. The Chinese call it *Hong ching* and cut the twigs every autumn, making baskets from them. This plant possesses considerable bank and sand binding qualities and may be experimented with for these purposes in the drier parts of the United States." (*Meyer.*)

35253 to 35262—Continued.

35262. SALIX sp. **Willow.**

From Laoling, Shantung, China. "(No. 1030, March 31, 1913.) A tall-growing willow, occurring on rather dry soil, called by the Chinese *Tsuan shin lin*, meaning more or less 'sky-piercing willow.' Of value as an avenue and park tree in the drier parts of the United States." (*Meyer.*)

35263. DIOSPYROS KAKI L. f. **Persimmon.**

From Seoul, Chosen (Korea). Presented by Mr. George H. Scidmore, American consul general. Received May 6, 1913.

"Scions from a hardy persimmon tree of the 'sheep-nose' variety growing on the compound of this consulate general." (*Scidmore.*)

See S. P. I. Nos. 34697 and 35223 for previous introductions.

35264. CARICA PAPAYA L. **Papaya.**

From Gonda, United Provinces, India. Presented by Rev. N. L. Rockey, district superintendent, Methodist Episcopal Church. Received May 5, 1913.

"Seeds of the following-described fruit. I have imported papayas from the Okinawa Islands and have crossed them with the Indian varieties with very fine results. The fruit was 11 inches long and 18 inches in girth, flesh very thick, 1¾ inches, sweet, and ate like a food rather than a dessert." (*Rockey.*)

35265 to 35279.

From Russia. Presented by Mr. Alexander Kol, Russian Government Assistant Agricultural Commissioner, St. Louis, Mo., who secured them from Mr. Pullman, of Bogorodsky Experiment Field, Government of Kursk. Also two samples from Charkof Agricultural Selection Station. Received May 8, 1913.

35265. TRIFOLIUM SUAVEOLENS Willdenow. **Persian clover.**

"Russian Agricultural Agency No. 134. Persian clover No. 77 of Charkof Selection Station."

35266. TRIFOLIUM INCARNATUM L. **Crimson clover.**

"Russian Agricultural Agency No. 137. Charkof Selection Station No. 78."

35267. TRIFOLIUM PRATENSE L. **Red clover.**

"Russian Agricultural Agency No. 307. Bogorodsky Experiment Field No. 9, fifth generation."

35268. TRIFOLIUM AGRARIUM L. **Golden clover.**

"Russian Agricultural Agency No. 311. Bogorodsky Experiment Field No. 1."

35269. TRIFOLIUM PRATENSE L. **Red clover.**

"Russian Agricultural Agency No. 312. Bogorodsky Experiment Field No. 6."

35270. TRIFOLIUM PRATENSE L. **Red clover.**

"*Foliosum.* Russian Agricultural Agency No. 313. Bogorodsky Experiment Field No. 13."

35271. TRIFOLIUM ARVENSE L. **Rabbit-foot clover.**

"Russian Agricultural Agency No. 314. Bogorodsky Experiment Field No. 3."

35265 to 35279—Continued.

35272. TRIFOLIUM PRATENSE L. **Red clover.**

"*Silvestris.* Russian Agricultural Agency No. 315. Bogorodsky Experiment Field No. 10."

35273. TRIFOLIUM PRATENSE L. **Red clover.**

"Russian Agricultural Agency No. 316. Bogorodsky Experiment Field No. 7, from Perm."

35274. TRIFOLIUM PRATENSE L. **Red clover.**

"Russian Agricultural Agency No. 317. Bogorodsky Experiment Field No. 8, early, wild."

35275. TRIFOLIUM ELEGANS Savi. **Clover.**

"Russian Agricultural Agency No. 318. Bogorodsky Experiment Field No. 4, with a mixture of *Lotus corniculatus.*" (Brown seeds.)

35276. TRIFOLIUM ALPESTRE L. **Clover.**

"Russian Agricultural Agency No. 319. Bogorodsky Experiment Field No. 2. Shadow loving."

35277. TRIFOLIUM PRATENSE L. **Red clover.**

"Russian Agricultural Agency No. 320. Bogorodsky Experiment Field No. 11, second generation, No. 65. With white spots near the base of the leaves."

35278. TRIFOLIUM PRATENSE L. **Red clover.**

"*Albiflorum* No. 103, second generation. Russian Agricultural Agency No. 321. Bogorodsky Experiment Field No. 13. According to Mr. Pullman, the pure yellow seeds are pure red clover, those colored are from a hybrid of white and red clover."

35279. TRIFOLIUM MONTANUM L. **Clover.**

"Russian Agricultural Agency No. 322. Bogorodsky Experiment Field No. 5."

35280 and 35381. IPOMOEA BATATAS (L.) Poir. Sweet potato.

From Callao, Peru. Presented by Mr. Luther K. Zabriskie, deputy consul. Received April 14, 1914.

Tubers of the following; quoted notes by Mr. Zabriskie:

35280.

"Sweet potato from Lurin. Native to the valley of Canete, in the southern part of Peru. Has a white exterior, but is yellow within. Has an especially sweet taste and is generally preferred by the Peruvians to other sweet potatoes."

35281.

"Purple-skinned sweet potato. Grown in the coastal regions of Peru."

35282 and 35283.

From Guemes, Argentina. Presented by Mr. H. F. Schultz, director of the Agricultural Experiment Station and Nursery. Received May 9, 1913.

35282. PERSEA AMERICANA Miller. **Avocado.**
(*Persea gratissima* Gaertn. f.)

"Seeds from fruits picked from a tree on the property of Srs. Bonino y Seggiario, Betania, Province of Salta, belonging to the Mexican type of Persea. The fruits are rather small, purple skinned (the progeny occasionally green

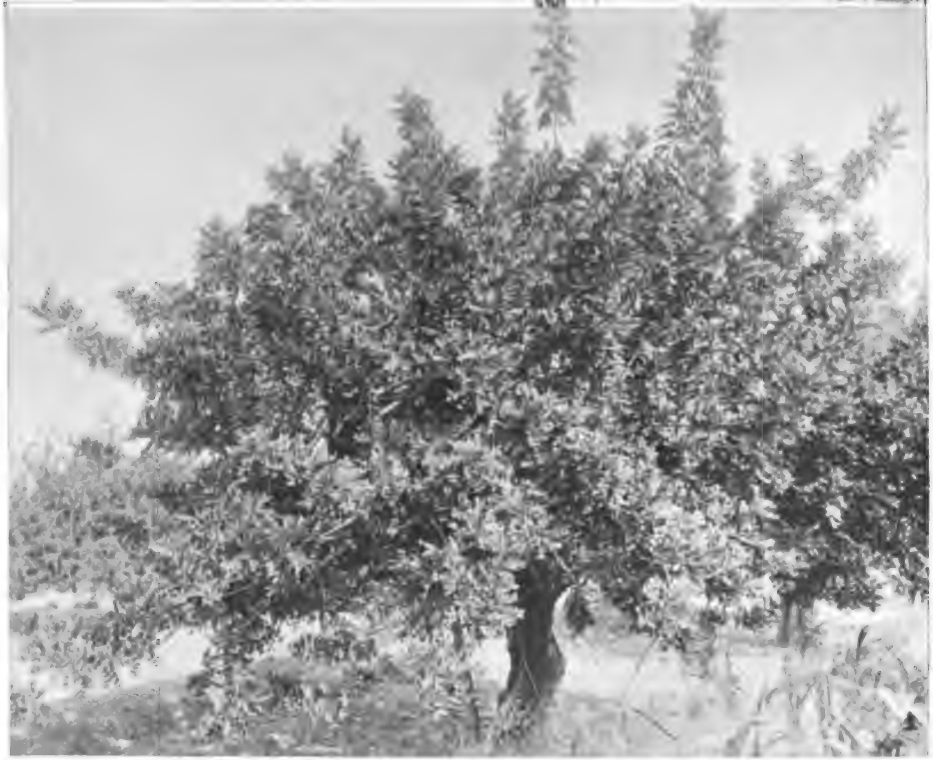
35282 and 35283—Continued.

skinned), of good flavor, and very early producers. The above-named gentlemen own some seedlings from fruits of the same tree, which, when 3 years old, carried over 80 fruits, some having dropped off when I observed the tree. The trees are of tall, upright growth, but otherwise present the same appearance as trees of the usual Mexican type. I have a few of the same variety of seedlings in my nurseries here which failed to take in budding and when 18 months old flowered, but did not set fruit; the trees are now 3 meters high. I expect these same seedlings to produce quite a number of fruits this year. It may be of interest to you that I have budded about 50 seedlings to one of the best varieties of Mexican-type avocado found in Campo Santo (Salta), and 20 to the other type (which I will call Peruvian type, because I am informed that the seeds from which the tree furnishing the budwood was grown were imported from Peru) and that the latter buds made as good a union on the Mexican-type stock and are growing just as well as they could be expected to do on the Peruvian stock. In other words, the Peruvian type, of which the *Trapp*, *Pollock*, etc., are representatives, does equally well on the Mexican, fragrant-leaf type of seedlings as when budded on seedlings of its own type.

"Avocados, or *paltas* as they are called here, are grown in limited numbers in Campo Santo and Betania, about 20 kilometers from this place. The trees flower in September and mature their fruit, depending on climatic conditions, in February and March. There are no systematically planted groves here, only a few scattered trees which, however, bring good returns to their owners. The fruits are all pear shaped, 8 to 11 centimeters long, and 4 to 5 centimeters in diameter; the seed is seldom loose. The flavor does not quite reach in nuttiness that of the best Florida-grown avocado, but is very satisfactory. In recent years a few trees of the Peruvian type have been planted in this neighborhood and yield much better returns, not quantitatively, but in quality and size. In Tucuman (Lules, San Pablo, etc.) I have seen trees of the Peruvian large-fruited type which were yielding very satisfactory crops and fruit of very good quality. The latter ones sell in Buenos Aires at $3.50 and $3 paper ($1.54 and $1.32 United States currency) per dozen, but are not sufficiently well known to the public to have caused a great demand. The Mexican-type fruits sell at from $2 to $3 paper locally and in the Salta city market. The manager of an English company in the Province of Jujuy is making great efforts to establish a large avocado grove and has imported, upon my advice, quite a number of *Trapp* and some *Pollock* plants from Florida. Unfortunately the plants generally arrive in pitiful shape." (*Schultz.*)

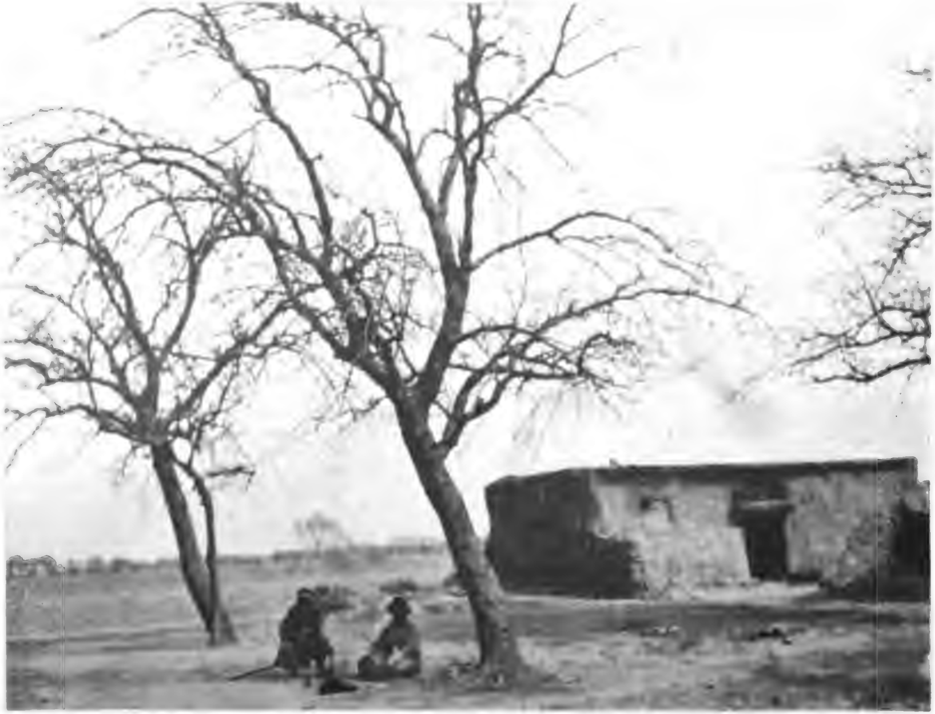
35283. ANNONA CHERIMOLA L. **Cherimoya.**

"Seeds from some choice fruits presented to me by the late Sr. Delfin Perez, Finca 'El Carmen,' Campo Santo, Province of Salta. The cherimoya was introduced into Campo Santo from Peru about 50 years ago, and while the famous 'oldest residents' who heard the tales of the original importers claim that the fruits have degenerated greatly, it must be admitted that the quality of the present-grown cherimoyas in this region is very fine indeed. I have never eaten as good cherimoyas in Central America or in the United States as are produced here; their flavor and aroma are exquisite and their texture velvety and most delicious. The beautifully fragrant, creamlike pulp melts in the mouth like the best ice cream, and were it not for the somewhat objectionable seeds a finer fruit could not be imagined. After sampling the locally produced cherimoya I feel no hesitancy in withdrawing the statement which I made in the United States before visiting this country that cherimoya culture had no important future in the United States. California can undoubtedly



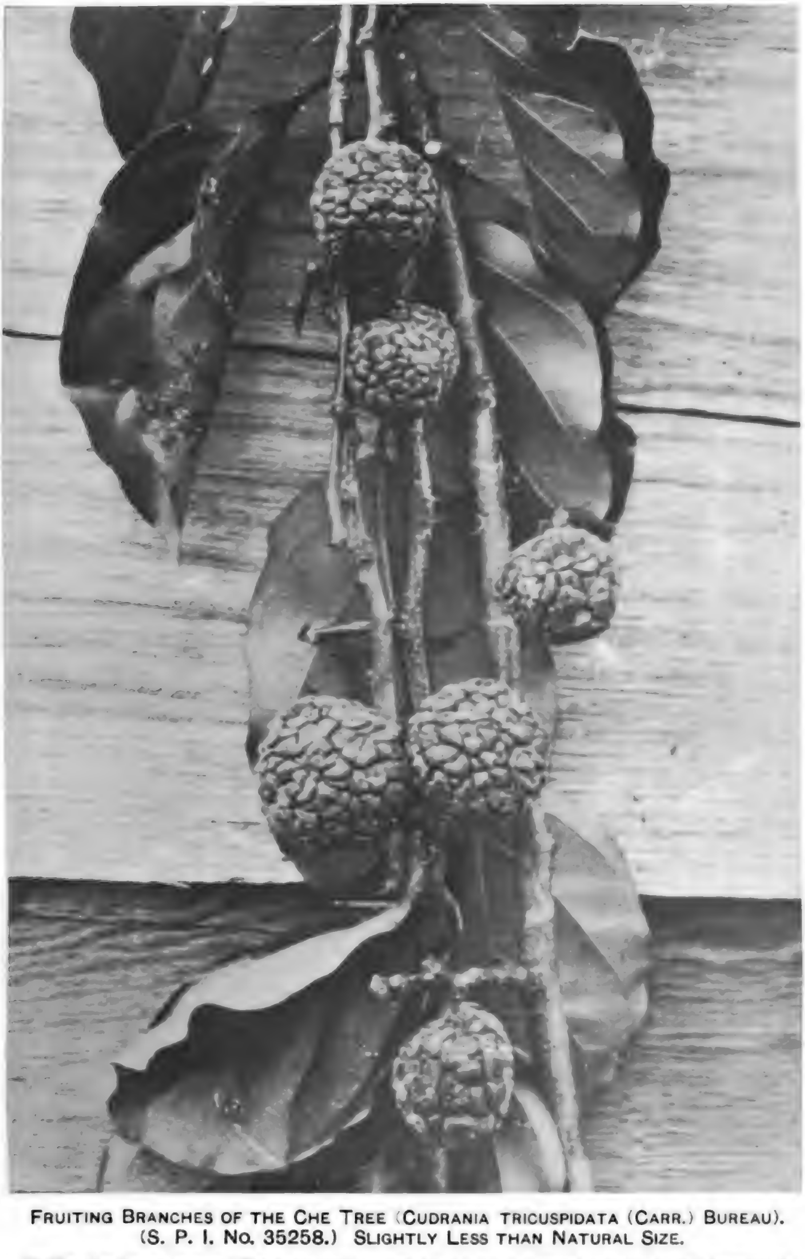
TREE OF THE VERA VARIETY OF CAROB (CERATONIA SILIQUA L.). (S. P. I. No. 35240.)

A young grafted tree of one of the best varieties of the carob grown in southeastern Spain. From the base of the tree a male shoot, grafted there when the tree was in the nursery, may be seen extending obliquely upward. The pods of this variety are characterized by having cavities filled with a sweet, honeylike substance, which drips out of them when the pods are broken. Photograph (P6123FS), taken by David Fairchild, July, 1901, in an orchard near Valencia, Spain.



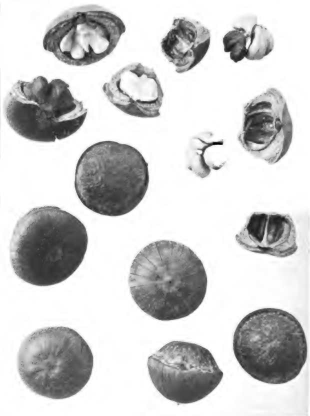
CHINESE JUJUBE TREES OF THE TANG OR SUGAR VARIETY (ZIZIPHUS JUJUBA MILLER). (S. P. I. No. 35256.)

In the hard-baked dooryard soil which is packed by the tread of many feet, the Chinese jujube seems to thrive. This variety is a rare one, even in the Shantung Province, and its fruits are large and much elongated. Photograph (13826FS), taken by Frank N. Meyer, at Laoling, China, March 31, 1913.



Fruiting Branches of the Che Tree (Cudrania tricuspidata (Carr.) Bureau). (S. P. I. No. 35258.) Slightly Less than Natural Size.

Unlike the Osage orange (*Toxylon pomiferum* or *Maclura aurantiaca*), to which this is related, its pink fruits are edible and though not of good quality are keenly relished by stock. The plant is spiny and can be used for hedges, and being smaller may prove to have an advantage over the Osage orange for garden-hedge purposes. A hybrid between it and the Osage orange has already been produced. It appears to be hardy as far north as Washington. Photographed by Bisset, (P10356FS), November 7, 1912, Atlanta, Ga.



EDIBLE ACORNS OF THE CHINESE OAK (PASANIA CORNEA (LOUR.) OERSTED). (S. P. I. NO. 35320.) NATURAL SIZE.

These hard-shelled acorns of the evergreen oak of South China have brilliant white kernels which are devoid of all astringency and are as sweet as chestnuts, with the firm texture of hazelnuts. They are sold by the bushel in the markets of Hongkong. The tree is evergreen and has shown a surprising degree of hardiness for a subtropical oak. It deserves to be tested in the Gulf States. Photograph (P9595FS). April 11, 1912.

by Google

35282 and 35283—Continued.

produce at least as good cherimoyas as are raised in this country and, as soon as people acquire a taste for them and learn to know and appreciate the fruit, cherimoya culture will become quite an important addition to horticulture in that State." (*Schultz.*)

35284. VICIA ATROPURPUREA Desfontaine. **Vetch.**

From Tangent, Oreg. Purchased from Mr. L. B. Luper. Received May 7, 1913.

"*Purple.*"

35285. ANNONA MURICATA L. **Soursop.**

From Liberia. Presented by Mr. J. W. T. Duvel, of the Bureau of Plant Industry, who received them from Mr. John D. Shanahan, who collected them on a trip to the west coast of Liberia. Received May 8, 1913.

"The fruit has a delicious but overpowering flavor, and it strikes me that it would make good flavoring for ice-cream soda and other drinks." (*J. D. Shanahan.*)

35286. EREMURUS HIMALAICUS Baker.

From Glasnevin, Dublin, Ireland. Presented by Sir F. W. Moore, director, Royal Botanic Gardens. Received May 9, 1913.

Distribution.—An herbaceous perennial with stout scapes bearing large white flowers, found on the drier slopes of the Himalayas at an elevation of 7,000 to 10,000 feet, in the northwestern part of India and in eastern Turkestan.

35287 to 35314.

Collected by Mr. Frank N. Meyer, agricultural explorer for the Department of Agriculture. Received May 10, 1913. Quoted notes by Mr. Meyer.

35287. ZIZIPHUS JUJUBA Miller. **Jujube.**
(*Ziziphus sativa* Gaertn.)

"*Spinosa.* (No. 1782a, Peking, China, March 18, 1913.) The wild jujube, a very spiny shrub often growing into a small tree; very drought resistant; sometimes used in China as a stock to graft the larger varieties upon. Has weedy tendencies, but may be given a test as a stock in very dry and alkaline regions. These seeds were collected on the city wall of Peking."

35288. CORYLUS MANDSHURICA Maxim. **Hazelnut.**

"(No. 1783a, Harbin, Manchuria, March 1, 1913.) A hazelnut found wild in the hilly parts of Manchuria, very resistant to cold and drought. The hulls of this hazelnut are very thick and hard, while the kernels are small. The people, however, collect them and eat them mostly roasted and salted, and in that way they taste very good indeed. To be tested especially in the northwest Plains section of the United States. Obtained on the market in Harbin."

35289. PINUS CEMBRA SIBIRICA Loudon. **Siberian stone pine.**

"(No. 1784a, Tomsk, Siberia, Feb. 1, 1913.) A native Siberian pine, growing into a stately tree, producing fine white lumber. Bears heavy cones full of edible seeds, which are freely sold in western and central Siberia. The trees naturally prefer a climate with cool nights, and probably will not thrive in the eastern United States. To be tested in the higher elevated regions of North America and in southern Alaska. Native Russian name *Kedr*. Obtained on the market in Tomsk."

35287 to 35314—Continued.

35290. Pinus cembra sibirica Loudon. **Siberian stone pine.**

"(No. 1785a, Krasnoyarsk, Siberia, Feb. 6, 1913.) This is apparently a variety with light-colored seeds; otherwise, the same remarks apply to it as to the preceding number."

35291. Pinus koraiensis Sieb. and Zucc. **Korean pine.**

"(No. 1786a, Harbin, Manchuria, Mar. 1, 1913.) A tall-growing pine occurring in large forests in Chosen (Korea), Manchuria, and eastern Siberia. Grows into a large tree and produces valuable lumber. The edible seeds are collected and sold as delicacies on some markets in Manchuria and eastern Siberia. To be tested in the cooler sections of the United States, especially in the Rocky Mountain region."

35292. Pinus koraiensis Sieb. and Zucc. **Korean pine.**

"(No. 1787a, Mukden, Manchuria, Mar. 11, 1913.) The same remarks apply to this number as to the preceding one. This and the following numbers up to 1798a, inclusive, 12 different species all told, were given to us by Dr. Nishimura, a naturalist connected with the South Manchurian Railway at Mukden, who informed me that the Japanese are trying all these trees and others besides in afforestation and reforestation experiments in Manchuria, so as to alleviate the dearth of lumber under which the southern part of Manchuria suffers now. In some of the more sheltered mountain valleys they are beginning to be quite successful already and are teaching the Chinese that it is better to plant than to cut and burn, as has been the practice heretofore."

35293. Pinus densiflora Sieb. and Zucc. **Pine.**

"(No. 1788a, Mukden, Manchuria, Mar. 11, 1913.) A hardy pine, occurring in northern and central China, withstanding long droughts and alkali in the soil quite well. Not of very fast growth. The lumber is apparently of no great value, as the stems are often crooked. As an ornamental evergreen in the drier Western States it probably will serve very well, while it also may supply lumber for farm purposes."

35294. Pinus thunbergii Parl. **Pine.**

"(No. 1789a, Mukden, Manchuria, Mar. 11, 1913.) A well-known pine occurring in Japan, Manchuria, and China. Produces fine lumber."

35295. Larix leptolepis (Sieb. and Zucc.) Gordon. **Larch.**

"(No. 1790a, Mukden, Manchuria, Mar. 11, 1913.) A larch common in Japan, now being experimented with by the Japanese in southern Manchuria as a timber tree. Succeeds fairly well in that dry climate, but does not make a quick growth."

35296. Abies firma Sieb. and Zucc. **Spruce.**

"(No. 1791a, Mukden, Manchuria, Mar. 11, 1913.) A well-known Japanese fir, possessing value as a lumber tree, also used for ornamental purposes, being experimented with by the Japanese in southern Manchuria."

35297. Cryptomeria japonica (L. f.) Don.

"(No. 1792a, Mukden, Manchuria, Mar. 11, 1913.) An important Japanese lumber tree, occurring also in south and central China. It is being tested by the Japanese as a timber tree in sheltered mountain valleys in southern Manchuria. Can be planted denser than perhaps any other evergreen conifer."

35298. Chamaecyparis pisifera (Sieb. and Zucc.) Endlicher.

"(No. 1793a, Mukden, Manchuria, Mar. 11, 1913.) A timber tree from Japan, now being experimented with for afforestation purposes in southern Manchuria."

35287 to 35314—Continued.

35299. CHAMAECYPARIS OBTUSA (Sieb. and Zucc.) Endlicher.

"(No. 1794a, Mukden, Manchuria, Mar. 11, 1913.) A timber tree from Japan, now being experimented with by the Japanese in southern Manchuria for afforestation purposes."

35300. SCIADOPITYS VERTICILLATA (Thunb.) Sieb. and Zucc.

"(No. 1795a, Mukden, Manchuria, Mar. 11, 1913.) A coniferous tree. A Japanese timber tree, experimented with like preceding number."

35301. ZELKOVA SERRATA (Thunb.) Makino.
(*Zelkova acuminata* Planch.)

"(No. 1796a, Mukden, Manchuria, Mar. 11, 1913.) A very useful timber tree from Japan, now being experimented with by the Japanese in southern Manchuria to supply strong wood for carpentering purposes."

35302. RHUS VERNICIFLUA Stokes. **Lacquer tree.**
(*Rhus vernicifera* DC.)

"(No. 1797a, Mukden, Manchuria, Mar. 11, 1913.) The well-known lacquer tree from China and Japan, now being experimented with by the Japanese in sheltered mountain localities in southern Manchuria."

35303. JUGLANS MANDSHURICA Maxim. **Manchurian walnut.**

"(No. 1798a, Mukden, Manchuria, Mar. 11, 1913.) The Manchurian walnut, a stately timber tree, occurring in Manchuria and Japan. It is very sensitive to late frosts and on that account has proved to be a tree difficult to grow away from its native countries."

35304. PYRUS USSURIENSIS Maxim. **Pear.**

"(No. 1799a, Harbin, Manchuria, Mar. 1, 1913.) A wild pear occurring in many places in eastern Siberia, Manchuria, and North China. This pear is probably the hardiest on the globe, withstanding temperatures where all other pears succumb. In central Siberia and in St. Petersburg this is the only pear that survives the winters unprotected. The fruits are rather small and inedible except after having been frozen or cooked, but the remarkable hardiness of this pear puts it in the front rank as a factor in breeding experiments with the aim to create hardier pears. This pear possesses a persistent calyx and has a very short peduncle, while the true *Pyrus sinensis* has a very long peduncle and the calyx drops off perfectly as soon as the fruit is formed. There are also several important differences between the two in so far as characteristics of bark, foliage, and general looks are concerned. See notes under S. P. I. No. 20336."

35305. SORBUS AUCUPARIA L. **Mountain ash.**
(*Pyrus aucuparia* Ehrh.)

"(No. 1800a, Kozlof, Tambof Government, Jan. 21, 1913.) Forma *fructi dulcis*. A few dried fruits of a variety of rowan tree bearing berries of a pleasant, sweet taste; selected and presented to us by Mr. I. V. Mijurin, plant breeder at Kozlof, Russia. These seeds to be planted in a cool locality where the mountain ash thrives well, Portland, Oreg., for instance."

35306. VITIS AMURENSIS × RIPARIA. **Grape.**

"(No. 1801a, Kozlof, Tambof Government, Russia, Jan. 21, 1913.) A few dried fruits of a hybrid grape which is perfectly hardy in central Russia. The berries are small, but possess a good flavor, and they probably can be much improved by further selection. This hybrid was obtained by Mr. I. V. Mijurin, plant breeder at Kozlof, Russia."

35287 to 35314—Continued.

35307. AMYGDALUS DAVIDIANA (Carr.) B. S. and Z. **Chinese wild peach.**
(*Prunus davidiana* Franchet.)

"(No. 1802a, Peking, China, Mar. 20, 1913.) A few seeds of this remarkable wild peach, upon which the Chinese graft practically all sorts of stone fruits. See former notes (S. P. I. No. 22009). Collected in gardens in Peking."

35308. RIBES sp. **Currant.**

"(No. 1803a, Krasnoyarsk, Siberia, Feb. 6, 1913.) A species of currant bearing small, reddish berries, coming from the Amur district, proving to be very hardy in the rather uncongenial climate of Krasnoyarsk. Obtained from Dr. V. M. Krutoffski, in whose garden this currant bush flourishes. Of value probably in the northwestern Plains section of the United States."

35309. RIBES sp. **Currant.**

"(No. 1804a, Krasnoyarsk, Siberia, Feb. 7, 1913.) A species of currant bearing relatively small berries of a dark-red color and a sourish taste. Preserves made from them have a most excellent taste. Occurs only in damp places in shady situations here and there in the northern Altai Mountains. Obtained from Mr. A. Y. Tugarinoff, curator of the Krasnoyarsk Museum, who collected them in the mountains of the southern part of the Province of Yeniseisk. The local name of this berry is *Kazirkan;* may be expected to thrive in the higher mountain regions of the United States; also in Alaska. Sow in a peaty soil and keep shady and moist."

35310. JUNIPERUS DAVURICA Pallas. **Juniper.**

"(No. 1805a, Chita, Transbaikalia, Siberia, Feb. 14, 1913.) A very hardy juniper of low-spreading habits, occurring only in a few localities in Transbaikalia, which possesses an extreme continental climate which is subject to tremendous fluctuations in temperature. This juniper may prove to be of value as an ornamental evergreen around homes in the northwestern Plains of the United States. Obtained from Mr. M. M. Timogovitsch, a plant collector at Chita, Siberia."

35311. MEDICAGO FALCATA L. **Alfalfa.**

"(No. 1806a, St. Petersburg, Russia, Dec. 12, 1912.) Seeds of the *Burkoon*, as this plant is called in southeastern Russia. These seeds were collected in the eastern part of Russia and obtained from Mr. A. D. Woeikoff, a nurseryman and plant collector at Novospassko, Syzran Government, Russia."

35312. MEDICAGO FALCATA L. **Alfalfa.**

"(No. 1807a, Issyl-kul, western Siberia, Jan. 27, 1913.) Seed of the *Sholteek*, as this yellow alfalfa is called in western Siberia. Obtained from Mr. I. M. Karsin, a gentleman much interested in the improvement of local forage plants and grains, living at Issyl-kul, western Siberia. These seeds were collected in the Omsk district, western Siberia, and are a distinct strain, different from the varieties that occur in eastern Russia."

35313. ONOBRYCHIS VULGARIS Hill. **Sainfoin.**
(*Onobrychis viciaefolia* Scop.)

"(No. 1808a, Issyl-kul, western Siberia, January 27, 1913). *Sibirica.* A native west Siberian forage plant obtained from Mr. I. M. Karsin, at Issyl-kul, who believes that this western Siberian form of sainfoin is bound to play a great rôle some of these days as a late fodder crop in dry regions with short growing seasons. This sainfoin thrives best in a soil which contains considerable lime."

35287 to 35314—Continued.

35314. TRITICUM DURUM Desf. **Durum wheat.**

"(No. 1809a, Issyl-kul, western Siberia, January 27, 1913.) Var. *melanopus* Körnicke. A few ears of a valuable black-bearded summer durum wheat having the bracts close together. Selected by Mr. I. M. Karsin, at Issyl-kul, who finds that, in dry western Siberia, wheat with short dense ears requires less moisture to mature and is less easily injured by long drought than wheat with long, loose, open ears. This variety, *melanopus*, especially needs but little moisture to ripen fully."

35315 to 35317. GOSSYPIUM sp. **Cotton.**

From Ibadan, Southern Nigeria. Presented by Mr. Frank Evans, Department of Agriculture. Received May 1, 1913.

35315. "*Agege.*"

35316. "*Ishan.*"

35317. "*Meko.*"

"The field characteristics of the *Meko* and *Ishan* varieties of cotton are very much alike, the only obvious differences being in the seed. The *Meko* has a fuzzy seed while the *Ishan* is clean seeded, with the exception of a small tuft at the beak. Although treated as annuals, both varieties are perennial and mature into tall shrubs about 15 feet high, having numerous suberect and sometimes rather drooping branches; the internodes are long, which character combined with the tall habit gives them a straggly appearance. Both varieties appear liable to the same diseases. Two diseases common in this district are confined to them and so far have not attacked the American varieties under trial. One of these diseases is a peculiar leaf-curl which affects the whole plant; the other disease is also of a very marked character and attacks the veins of the leaves, turning them black with formations of a yellow, waxy material. Both diseases are under investigation." (*Evans.*)

"Local varieties, and have probably been grown in west Africa for 200 to 300 years. They resemble the Peruvian types in seed and lint. There is a recent English work on the agriculture of the British West African colonies which gives a chapter on the cotton of the region." (*F. L. Lewton.*)

35318. BRASSICA INSULARIS Moris.

From La Mortola, Ventimiglia, Italy. Presented by Prof. Alwin Berger, director, Botanic Gardens. Received April 10, 1913.

"Supposed to be one of the parent forms of the garden cabbages." (*D. N. Shoemaker.*)

35319. COCOS NUCIFERA L. **Coconut.**

From Cape San Blas. Presented by Mr. Robert Wilcox, Colon, Panama, through Mr. J. C. Kellogg, American consul. Received May 13, 1913.

"A large oval coconut." (*O. F. Cook.*)

35320. PASANIA CORNEA (Lour.) Oersted. **Evergreen oak.**
(*Quercus cornea* Lour.)

From Hongkong, China. Purchased from Mr. H. Green, superintendent, Botanical and Forestry Department. Received at the Plant Introduction Field Station, Chico, Cal., May 12, 1913.

"An evergreen oak said to be a very showy ornamental, but interesting particularly because it bears acorns as hard shelled as the nuts of the American hickory, which contain kernels almost as sweet as the Spanish chestnut. These acorns are sold in the markets of Canton and Hongkong in large quantities and are keenly relished, not only by the orientals, but also by Europeans. Although difficult to predict how hardy this species will be in America, it is worthy of trial in all regions where citrus fruits can be grown. A single specimen at my place in Maryland lived through two winters and grew slowly, although the temperature dropped to −17° F. It succumbed the third winter, however, although it was a very mild open one." (*Fairchild.*)

For an illustration of the hard-shelled edible acorns of this evergreen Chinese oak, see Plate VI.

35321. OPUNTIA FICUS-INDICA (L.) Miller. **Prickly pear.**

From Valparaiso, Chile. Presented by Mr. W. F. Wight, of the Bureau of Plant Industry. Received May 14, 1913.

Cuttings.

35322. CAPSICUM ANNUUM L. **Red pepper.**

From Budapest, Hungary. Presented through Mr. F. E. Mallett, vice consul general. Received May 15, 1913.

"Seeds from the Kalocsa district."

35323. MIDA ACUMINATA (R. Br.) Kuntze. **Quandong.**
(*Fusanus acuminatus* R. Br.)

From Sydney, New South Wales, Australia. Purchased from Anderson & Co. Received at the Plant Introduction Field Station, Chico, Cal., March 10, 1913.

"The quandong, which is found in all the States of the Commonwealth except Tasmania, is a beautiful evergreen tree, finally attaining a height of about 30 feet. It has opposite lance-shaped leaves, mostly 2 or 3 inches long, and rather numerous insignificant flowers arranged on small, terminal branches. These are succeeded by globular fruits, about three-fourths of an inch in diameter, of a reddish color when ripe, and in that condition are often called 'native peaches.' When the quandong is carrying a crop of fruit the smaller branches often become pendulous from the weight of it, and then the tree is decidedly ornamental and produces a very fine effect in the landscape. The succulent outer part of the fruit is acidulous, but can be made into an excellent preserve and jelly, having a flavor somewhat similar to guava conserve. It can also be used for tarts or pies or served with cream. The outer covering, after the nuts have been extracted, may be dried either in the sun or in an evaporator. The nuts, which are called quandongs, have edible and nutritious kernels of a very pleasant flavor. They contain a large percentage of oil, which burns readily, producing a bright light. The oil can be expressed from the kernels by ordinary methods, and may eventually prove of considerable commercial importance. The hard, curiously and deeply pitted nuts are often pierced and strung as necklaces, bracelets, and other ornaments and are much prized for such purposes. These inland quandongs must not be confounded with those that grow in the warmer coast districts, for they are produced on a different kind of tree, of which the botanical name is *Elaeocarpus grandis*. The trunk of the inland quandong is not of great dimensions, for it rarely exceeds 8 or 9 inches in diameter. Its timber is hard, close in the grain, not liable to split or warp, and when mature of a yellowish color. It is easy to work, and on being freshly cut or reworked emits a pleasant fragrance. It is suitable for turnery and cabinet work, and has been recommended for wood engraving. The smooth surface takes a fine polish. At one time the wood of the quandong was employed by the aborigines in the interior to produce fire, and the fruit, including the nut, constituted an important article of their food. The leaves are useful feed for stock in adverse seasons, and both cattle and sheep often eat the young seedlings and taller plants even when other feed is plentiful in the pastures. In consequence of this, the tree is not so plentiful in some districts as formerly. This tree is well worth extensively planting in the interior about homesteads, from both an ornamental and an economic point of view. The drought-enduring qualities of established trees are remarkable, for their growth seems to be neither seriously affected by the hot winds that are periodically experienced in summer nor by the long periods of dry weather which prevail in adverse seasons. There would be no difficulty in bringing it under systematic cultivation, for when left unmolested for a time it produces quantities of fruit, and under ordinary conditions the nuts germinate readily. Under cultivation the succulent portion of the fruit might be considerably increased and the kernel enlarged, which would add greatly to its importance as a fruit and nut producing tree. Plants grown from seeds in nursery rows do not bear transplanting very well, for if the root system of the young seedlings is disturbed they will take some time to recover or they may eventually die. The nuts, therefore, should be planted where it is intended that the trees are to grow permanently, and the best time to do this is in the early autumn or early spring, when the earth is moist. The nuts should be left covered with about 1 inch of soil. If the trees are intended for growing in rows or in groups, the nuts should be planted not less than 15 feet apart, and it is advisable to set two together in case one fails to germinate. Should both germinate, the weaker of the two seedlings should be cut out when about 2 years old. The following method of raising seedlings I have found very successful: In 3-inch flower pots that have been drained and filled nearly to the brim with a light compost, one nut was planted in the center of each, and left covered with a quarter of an inch of soil. The pots were then plunged to the rim in a bed of ashes in a sunny position and regularly watered. In a short time the nuts germinated, and the young seedlings were large and strong enough for transplanting in about 18 months. The young plants I had under cultivation made about 1 foot of growth annually. Germination may, under some conditions, be facilitated by slightly cracking the nut, but very great care must be taken not to injure the kernel containing the germ. Only the best developed nuts from the ripest fruits should be selected for planting, then there will be no difficulty in getting them to germinate and develop into strong plants." (*Fred Turner, F. L. S., Sydney Morning Herald, Dec. 16, 1912.*)

For an illustration of the dried fruit and nuts of the Australian quandong tree, see Plate VII.

35324 to 35399.

From Bangalore, Mysore, India. Presented by Mr. G. H. Krumbiegel, economic botanist, Government Gardens. Received March 24, 1913.

Numbers in parentheses are exhibit numbers in the Official Handbook of Exhibits of the Mysore Dasara Industrial and Agricultural Exhibition, 1912, in which certain details concerning the yields and methods of cultivation of the respective numbers are given.

Seeds of the following:

35324 to 35331. ELEUSINE CORACANA (L.) Gaertn. **Ragi.**

35324. (725) White.

35325. (743) White, large seeded.

35326. (751) Dark red, large seeded.

35327. (754) Yellowish red.

35324 to 35399—Continued.

35328. (769) Light red, retaining the pericarp.

35329. (773) Black and red seed (the common kind).

35330. (796) Light red, large seeded.

35331. (798) White, easily decorticated.

35332. PASPALUM SCROBICULATUM L. **Kodo.**

(807, 813, 822, 825, 830.)

Distribution.—A grass found throughout the warmer parts of India, wild and cultivated, and generally distributed in the Tropics.

35333. PENNISETUM GLAUCUM (L.) R. Brown. **Pearl millet.**
(*Pennisetum typhoideum* Rich.)

(1138.)

35334 to 35336. PANICUM MILIARE Lamarck. **Little millet.**

35334. (949, 1023, 1025.)

Distribution.—A grass found in India and generally introduced in the Tropics.

35335. (1027, 1063.) **35336.** (993, 1070.)

35337 to 35342. CHAETOCHLOA ITALICA (L.) Scribner. **Millet.**
(*Setaria italica* Beauv.)

35337. (939) Siberian millet.

35338. (944) Siberian millet.

35339. (946) Common millet.

35340. (965) Common mixed with Hungarian and Siberian millets.

35341. (1072) Siberian millet.

35342. (1076) Hungarian millet.

35343 to 35345. DOLICHOS BIFLORUS L.

35343. (1223.)

35344. (1237.)

35345. (1213, 1221, 1233, 1243, 1248.)

35346. PHASEOLUS MUNGO L. **Urd.**

(1294, 1295, 1300.)

35347. PHASEOLUS AUREUS Roxb. **Mung bean.**

(1313, 1318, 1327.)

35348. CAJAN INDICUM Sprengel. **Pigeon pea.**

(1169, 1204, 1205, 1206.)

35349. VIGNA CYLINDRICA (Stickman) Skeels. **Catjang.**
(*Vigna catjang* Walp.)

(1331, 1333, 1334, 1335.)

35350. VIGNA CYLINDRICA (Stickman) Skeels. **Catjang.**

(1329, 1332.)

35351 to 35354. DOLICHOS LABLAB L. **Bonavist bean.**

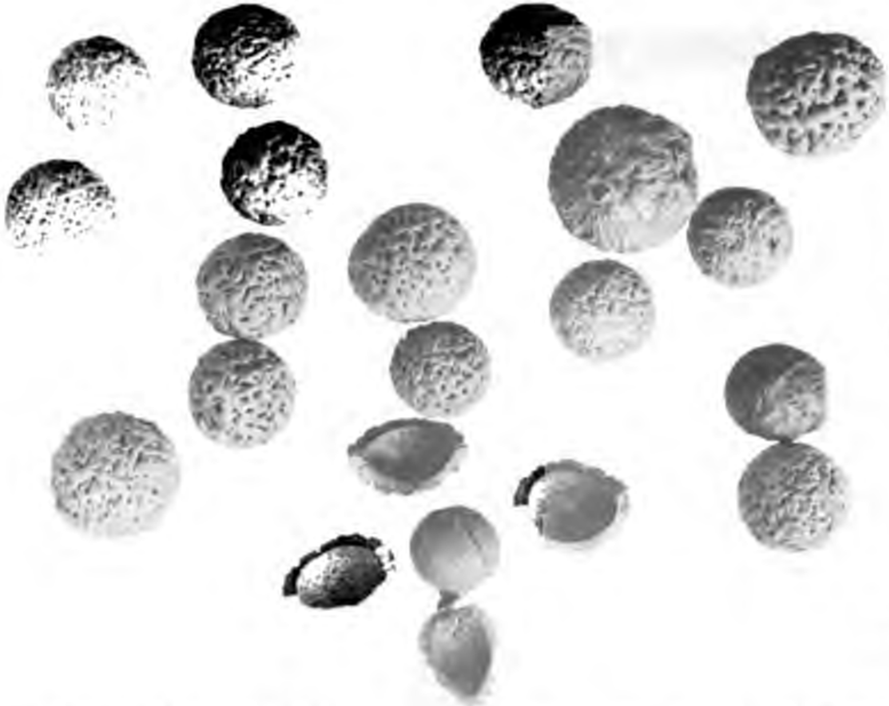
35351. (1367, 1385.)

35352. (1362, 1372.)

35353. (1349, 1354, 1365.)

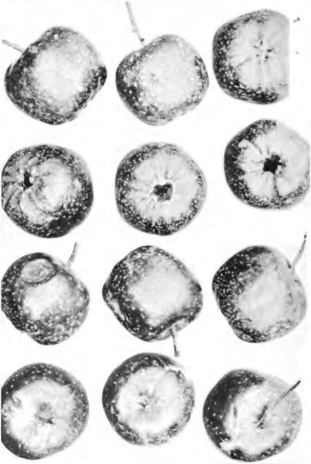
35354. (1350, 1374, 1380, 1381, 1383, 1384, 1386.)

PLATE VII.



DRIED FRUITS AND NUTS OF THE AUSTRALIAN QUANDONG (MIDA ACUMINATA (R. BR.) KUNTZE).
(S. P. I. NO. 35323.) NATURAL SIZE.

A low-growing evergreen tree with remarkable drought-resistant qualities, which when loaded with its reddish fruits becomes very ornamental. The ripe fruits, called native peaches, are good stewed or when made into preserves, resembling in flavor the guava. The nuts have oily kernels of a pleasant flavor and are sold as quandongs. They were to the aborigines of Australia what almonds are to us. The leaves are greedily eaten by cattle and sheep, even when other forage is plentiful. Recommended in Australia for extensive planting around homesteads. Photograph (P11332FS), June 19, 1913.



THE CHINESE EDIBLE HAW (CRATAEGUS PINNATIFIDA BUNGE). (S. P. I. No. 35456.) NATURAL SIZE.

In the Shantung Province of China, Mr. Frank N. Meyer found orchards of this hawthorn of considerable size. The fruits are stewed or candied or made into jellies or preserves, and their characteristic flavor seems to have appealed strongly to European residents of China. The culture of the hawthorn in China suggests that a horticultural study of our own species of Crataegus should be made. Photograph (P13072FS), by Frank N. Meyer, Taianfu, Shantung, China, March 20, 1914.

35324 to 35399—Continued.

35355 to 35367. PANICUM MILIACEUM L. **Proso.**

35355. (1165) Dark amber seed mixed with yellow and gray.

35356. (941) Dark amber, few gray.

35357. (1153) Amber, yellow, and gray.

35358. (1166) Gray seed mixed with amber and yellow.

35359. (994) Dark amber and gray.

35360. (1157) Gray, amber, and yellow.

35361. (1167) Gray, dark amber, and yellow.

35362. (1160) Dark amber and gray mixed.

35363. (1164) Amber, gray, and yellow.

35364. (1154) Gray seed mixed with amber.

35365. (1158) Gray seed.

35366. (1156) Gray seed mixed with amber and yellow.

35367. (1163) Dark amber seed mixed with gray.

35368 to 35372. GUIZOTIA ABYSSINICA (L. f.) Cass. **Niger.**

"An annual herb from tropical Africa grown in oriental countries for its oil-producing seeds. Thrives well in southern California and the Gulf States, but requires a growing season too long for culture in the North. Grows readily in light soils of moderate fertility." (*W. Van Fleet.*)

35368. (1456.)
35369. (1443.)
35370. (1444.)
35371. (1446.)
35372. (1447.)

35373 to 35380. SESAMUM ORIENTALE L. **Sesame.**
(*Sesamum indicum* L.)

"Annual herb, native to India and Egypt. Grown extensively in the Orient for its oil-bearing seeds. Succeeds everywhere in warm and temperate climates. Prefers light, warm soils." (*W. Van Fleet.*)

35373. (1426.)
35374. (1434.)
35375. (1421.)
35376. (1430.)
35377. (1428.)
35378. (1432.)
35379. (1417.)
35380. (1433.)

35381 to 35399. RICINUS COMMUNIS L. **Castor bean.**

"A treelike perennial, native of tropical Africa. Grown as an annual in northern countries for its oil-containing seeds. Succeeds over the greater portion of the United States." (*W. Van Fleet.*)

35381. (1482.)
35382. (1468.)
35383. (1500.)
35384. (1497.)
35385. (1478.)
35386. (1481.)
35387. (1498.)
35388. (1480.)
35389. (1483.)
35390. (1484.)
35391. (1476.)
35392. (1467.)
35393. (1464.)
35394. (1511.)
35395. (1503.)
35396. (1504.)
35397. (1505.)
35398. (1488.)
35399. (1489.)

35400. ARRACACIA XANTHORRHIZA Bancr. **Apio.**

From Caracas, Venezuela. Presented by Mr. H. Pittier, of the Bureau of Plant Industry. Received May 24, 1913.

"This plant is cultivated in the cooler mountain districts of northern South America, where the roots form the staple diet of the inhabitants. The plant is somewhat like the wild hemlock (*Conium maculatum*) but its leaves are broader, its stem not spotted, and its flowers are of a dingy purple color; the roots are large and are divided into several fleshy lobes of the size of a carrot, which when boiled are firm and have a flavor intermediate between that of a chestnut and a parsnip." (*Masters, Treasury of Botany.*)

"Here the plant grows only in the mountains above 1,500 meters. I do not know whether it reaches the freezing line, but everybody says it does not thrive at lower altitudes." (*Pittier.*)

Tubers.

35401. MEDICAGO SATIVA L. **Alfalfa.**

From China. Presented by Rev. Horace W. Houlding, South Chihli Mission, Tai Ming-Fu, North China. Received May 27, 1913.

"Seed grown on the mission farm in Chihli Province. This is self-seeded wild alfalfa, called by the natives *Yeh-mu hsu*, which means 'wild alfalfa'. It was grown on high, uncultivated land. Seed was taken from very low grown prostrate plants which bear blue flowers and coiled pods. Plants appear very much like white clover. Collected August, 1912." (*Houlding.*)

35402. AGROPYRON CRISTATUM (L.) Beauv.

From Irkutsk, Russia. Presented by Mr. Victor Pissareff, director, Agricultural Experiment Station of the Government of Irkutsk. Received April 28, 1913.

35403 to 35412. MANGIFERA spp. **Mango.**

From Buitenzorg, Java. Presented by Dr. J. C. Koningsberger, director, Botanic Garden. Received May 20, 1913.

Rooted cuttings of the following, except as otherwise stated:

35403. MANGIFERA FOETIDA Lour.

"(No. 1.) Var. *mollis* Blume. *Mangga daging.*"

M. foetida is described as follows:

"Petals one twenty-fifth to two-fifths inch long, elliptical lanceolate; at the base yellow, for the remaining part dark red except the top, which is colored less dark red. The flowers lose more or less of their colors at the time of fading, Stamen one, filament one-fifth to two-fifths inch long. Style almost terminal, one-fifth inch long more or less. Disk almost absent. Fruit elliptical oblong, oblique. Leaves elliptical; tip generally slightly emarginate, very thick and firm, more or less plaited, 5 to 13 inches long, 2 to 5 inches broad. Tree 60 to 90 feet high. Flowering period, May to December. Fruit flesh yellow, with the smell and flavor of turpentine. The fruits are eaten by the natives, who often cultivate this species." (*Letter from the Director, Buitenzorg Botanic Gardens, May 29, 1915.*)

"Var. *mollis* Blume having medium sized, delicious fruits, appears to us from the leaf to belong rather to *M. indica* than to *M. foetida;* the native name *mangga* (not *limoes*) points to this, and the taste of the fruit (entirely without bad odor or resinous) likewise." (*Koorders and Valeton, Boomsorten van Java, pt. 4, p. 90.*)

Distribution.—A large tree found throughout the islands of the Malay Archipelago.

35403 to 35412—Continued.

35404 to 35411. Mangifera indica L.

Malay names.

35404. "(No. 2.) *Mangga arvemania.*"

35405. "(No. 3.) *Mangga golek.*"

Seedling.

35406. "(No. 4.) *Mangga madoe.*"

Seedlings.

35407. "(No. 5.) *Mangga tjĕngkir.*"

35408. "(No. 6.) *Kapang. Mangga kapang.*"

35409. "(No. 7.) *Cheribon. Mangga gĕdong* or *cheribon.*"

35410. "(No. 8.) Var. *compressa. Mangga bĕngala.*"

35411. "(No. 9.) Var. *gratissima. Mangga wangiĕ.*"

35412. Mangifera sp.

Plant received without label.

35413 to 35416.

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received May 19, 1913.

Seeds of the following; quoted notes by Mr. Barrett:

35413. Heritiera littoralis Dryander. **Dungon-late.**

"A medium-sized tree with a dense crown, leaves entire, leathery, dark green above and silvery beneath. The wood is very hard and durable and classed among the best of the Philippine hardwoods. The tree is a good ornamental and makes an excellent windbreak. It succeeds best on moist land and grows well even in the proximity of salt water."

Distribution.—Along the coasts of India and islands as far as the Khasia Hills; generally distributed on the coasts in the Tropics of the Old World.

35414. Ipomoea sp.

"Convolvulaceæ. A climber of medium vigorous growth with pure white, very attractive flowers that are open until in the afternoon; season of flowering, winter."

35415. Oroxylon indicum (L.) Vent. **Pinkapinkahan.**

"A striking ornamental tree of the Bignoniaceæ; it attains a height of 5 or more meters, with large compound leaves 1.5 meters long."

35416. Ziziphus trinervia (Cavan.) Poir. **Ligaa.**
(*Ziziphus exserta* DC.)

"A tall shrub or small, thorny tree of vigorous growth. This species may prove a good stock for the improved varieties of *Ziziphus jujuba* in the Tropics, where this species does not succeed well on its own roots. It should be planted on well-drained land."

Distribution.—The vicinity of Manila in the island of Luzon.

35417. Smilax officinalis H. B. K. Sarsaparilla.

From San Ramon, Costa Rica. Presented by Mr. Ad. Tonduz, botaniste explorador. Received May 22, 1913.

"In my explorations in the region of San Ramon I have met with a smilax (zarzaparilla) which I believe to be the true *S. officinalis* cultivated in Jamaica. It is very abundant here and wild in the woods."

Distribution.—A woody climber found in Colombia and Panama.

35418. CARICA PAPAYA L. **Papaya.**

From Merida, Yucatan, Mexico. Presented by Mr. Arturo Zavala. Received May 19, 1913.

35419 to 35425.

From Russia. Presented by Mr. Alexander Kol, Russian Government Assistant Agricultural Commissioner, St. Louis, Mo. Received May 21, 1913.

35419. TRIFOLIUM SUAVEOLENS Willd. **Persian clover.**

"Russian Agricultural Agency No. 134. Shabdar, Charkof Selection Station No. 77.

35420. MEDICAGO SATIVA L. **Alfalfa.**

"Russian Agricultural Agency No. 135. Tambof, Charkof Experiment Station No. 3.

35421. MEDICAGO SATIVA L. **Alfalfa.**

"Russian Agricultural Agency No. 136. Common local alfalfa from Government of Crimea, Charkof Experiment Station No. 5.

35422. AGROPYRON sp.

"Russian Agricultural Agency No. 301. Wheat-grass with narrow ears. Kostichef Experiment Station, Samara.

35423. AGROPYRON CRISTATUM (L.) Beauv.

"Russian Agricultural Agency No. 303. *Zhitniak.* Wheat-grass with broad ears. Kostichef Experiment Station, Samara.

35424. TRIFOLIUM INCARNATUM L. **Crimson clover.**

"Russian Agricultural Agency No. 137. Clover. Charkof Selection Station No. 78.

35425. LATHYRUS SATIVUS L.

"Russian Agricultural Agency No. 309. Flat field peas. Verchnedneprovsky Experiment Field, Yekaterinoslav.

35426. BRASSICA PEKINENSIS (Lour.) Skeels. **Pai ts'ai.**

Grown at Arlington Farm from S. P. I. No. 21625, 1912 seed. Received May 16, 1913.

"*Pai ts'ai.*"

35427 and 35428. MEDICAGO SATIVA L. **Alfalfa.**

From Lima, Peru. Purchased from Dr. C. H. T. Townsend, chief entomologist, Peruvian Department of Agriculture. Received May 14, 1913.

Seeds of the following; quoted notes by Dr. Townsend:

35427. "*Chancay.* Comes from the Sierra inside from Chancay, thus grown at considerable altitude."

35428. "*San Pedro.* Comes from near Pacasmayo, grown near sea level, produces sooner and with less water."

35429 to 35434.

From the Argentine Andes, south of Lago Nahuel Huapi. Presented by Dr. Bailey Willis. Received March 31, 1913.

35429 to 35434—Continued.

Seeds of the following; quoted notes by Dr. Willis:

35429. BROMUS sp.

"(No. 1.) Andes of Argentina, latitude 41° S., near Lago Hess. Burnt mountain slopes, soil volcanic ash; altitude 800 meters. A grass growing in bunches waist high. Reported good horse feed and doing well when irrigated."

35430. ELYMUS sp.

"(No. 2.) From same locality as No. 1 (S. P. I. No. 35429). Prevailing pasture grass of the burnt forests. Said to be excellent feed and to be cultivated by the Chilean Indians, who cut it for hay."

35431. AGROSTIS sp.

"(No. 3.) From same locality as above (S. P. I. No. 35430). *Pasto Araña*, or spider grass. A fine red grass not considered valuable for feed."

35432. JUNCOIDES sp.

"(No. 4.) Andes of Argentina, latitude 41° 30′′ S. Planicie del Toro on Rio Villegas. Altitude 900 meters. *Pasto Colorado*, a common 'grass' of the northern pampas; not abundant here in the mountains at this altitude."

35433. ELYMUS sp.

"(No. 5.) From the same locality as No. 4 (S. P. I. No. 35432). *Cevarilla*, a grass that grows like wheat in moist places and is much valued for pasture."

35434. TORRESIA sp.

"(No. 6.) From the same locality as Nos. 1 and 2 (S. P. I. Nos. 35429 and 35430). *Coiron*, the prevailing bunch-grass of the pampas of Patagonia, but common here in the dry gravelly bench lands and plains."

"All these grasses thrive and ripen where heavy frosts are frequent throughout the summer."

35435 to 35443. MEDICAGO SATIVA L. **Alfalfa.**

From Poona, India. Presented by Mr. T. Forster Main, deputy director of agriculture. Received May 23, 1913.

"From botanical examination it seems that practically the specimens do not show any appreciable difference, the only slight differences which were noticed being the more or less hairy nature of the leaves, the prominent or obscure toothing of their margins, the more or less emargination of their tips, and the smaller or larger size of the same." (*Extract from his letter of April 4, 1913.*)

Seeds of the following:

35435. "No. 1. *Rajkot.*"

35436. "No. 2. *Rajkot.*"

35437. "No. 3. *Rajkot.*"

35438. "No. 4. *Junagar.*"

35439. "No. 5. *Bhavnagar.* Less hairy, large leaflets, 1¼ inches to 1½ inches long by one-fourth to one-half inch, oblanceolate, less emarginate, teeth rather obscure."

35440. "No. 6. *Manavadar.* Small obovate-cuneate leaflets three-fourths to 1 inch long by one-fifth to one-fourth inch broad, hairy on the under surface, midrib, and nerves, with the apex emarginate and retuse."

35441. "No. 7. *Januagar.*"

35442. "No. 8. *Palitana No. 1.* Teeth of the leaflets more prominent. Inferior quality.

35443. "No. 9. *Palitana No. 2.* More or less like *Manavadar.* Good variety."

35444 to 35448. HEDYSARUM spp.

From Albano, Stockholm, Sweden. Presented by Dr. Veit Wittrock, director of the Botanic Gardens. Received March 31, 1913.

35444. HEDYSARUM ALTAICUM Fisch.
(*Hedysarum polymorphum* Ledeb.)

Distribution.—The region of the Altai Mountains, in Siberia.

35445. HEDYSARUM FLAVESCENS Regel and Schmalh.

See S. P. I. No. 33304 for previous introduction.

35446. HEDYSARUM HEDYSAROIDES (L.) Stuntz.
(*Hedysarum obscurum* L.)

"A hardy perennial from the Alps of Germany and Switzerland. It rarely exceeds a foot in height and produces its spikes of pendulous flowers, which are of a most beautiful purple color, in July and August." (*Botanical Magazine, pl. 282.*)

See S. P. I. No. 33306 for previous introduction.

35447. HEDYSARUM MULTIJUGUM Maxim.

Distribution.—A shrubby legume found in desert places in southern Mongolia and in the Province of Kansu, in China.

35448. HEDYSARUM ALPINUM L.
(*Hedysarum sibiricum* Poir.)

"A very ornamental hardy perennial from Siberia. Stem tall, branched, fluted. Leaves odd pinnate, leaflets about 12 pairs, ovate, obtuse with a small mucro, ribbed with parallel veins on the underside. Flowers crimson, in long racemes, on foot stalks longer than the leaves, produced abundantly from May to August. (*Botanical Magazine, pl. 2213.*)

35449 to 35455.

From Los Banos, Philippine Islands. Presented by Mr. C. F. Baker, University of the Philippines, College of Agriculture. Received May 24, 1913.

Seeds of the following:

35449. FICUS ULMIFOLIA Lamarck. **Fig.**

"A very good edible form of this common Philippine fig. Occasional individual trees of this small fig give very sweet and very palatable fruits. It should certainly be a subject for some breeding and selection work. Figs for moist, hot countries are a great desideratum." (*Baker.*)

35450. MYRISTICA PHILIPPENSIS Lamarck. **Wild nutmeg.**

"*Dugóan.*' A fine tree. Apart from the interest in this fine forest tree as a wild nutmeg, it is a tree of great ornamental value for the wet Tropics. (*Baker.*)

"This is a small or medium sized tree reaching a height of 15 to 25 meters and a diameter of 60 or more centimeters. The bole is usually somewhat irregular, slightly buttressed, and yields lengths up to 12 meters. The crown is irregular and somewhat dense, about one-third the height of the tree. This species is found scattered throughout the dipterocarp forests. It requires good soil and is fairly tolerant to shade. The bark is 4 to 6 millimeters in thickness, nearly black in color, with light-brown patches where freshly shed; the inner bark is brown to reddish brown in color and when cut exudes a thin red sap. The sapwood is very light creamy pink in color; the heartwood is slightly darker in color, soft, moderately heavy, not durable, and somewhat spongy in texture. It is used locally for light and temperate constructions, boxes, and dry measures." (*H. N. Whitford, The Forests of the Philippines, pt. 2, 1911.*)

35449 to 35455—Continued.

35451. PITHECOLOBIUM ANGULATUM Bentham.

"Ornamental small tree." (*Baker*).

35452. PITHECOLOBIUM LOBATUM Bentham.

"Small tree with very large ornamental red pods. Valuable as a tropical ornamental, especially so far as the red pods, in which, after they open, the blue seeds hang for a long time." (*Baker*).

"This Pithecolobium goes under the name of *Anagap*, or *Bansilak*. It is a small or medium sized tree, with large red, deeply lobed and curved pods. The wood of this tree is used to some extent." (*H. N. Whitford, The Forests of the Philippines, pt. 2, 1911.*)

35453. PREMNA ODORATA Blanco.
(*Premna pubescens* Blume.)

"The leaves are rich in an unknown essential oil, which possesses marked insecticidal power. The leaves dried and powdered are used by the natives for lice on poultry and other animals." (*Baker.*)

35454. SIDEROXYLON sp.

"A large, fine, forest tree in an interesting group. Will be of great interest in tropical gardens." (*Baker.*)

35455. STREBLUS ASPER Loureiro. **Kalios.**

"An ilex-leaved moraceous tree. Produces large quantities of subedible juicy fruit of small size. Cultivation and selection might easily make something of value of it some day." (*Baker.*)

"This is a small tree known as *Kalios* and is common in second-growth forests." (*H. N. Whitford, The Forests of the Philippines, pt. 2, 1911.*)

Distribution.—The drier parts of India and eastward through China, Cochin China, and the Malay Archipelago and the Philippines.

35456 to 35458.

Collected by Mr. F. N. Meyer, agricultural explorer for the Department of Agriculture. Received May 27, 1913.

Quoted notes by Mr. Meyer.

35456. CRATAEGUS PINNATIFIDA Bunge. **Hawthorn.**

"(Tsinan, Shantung, China, April 9, 1913.) A Chinese cultivated edible haw called *Hong kuo* much used by the Chinese as a sweetmeat, being eaten mostly covered with molten sugar; also stewed with sugar or honey. Foreigners in China make much use of them as preserves, compotes, jellies, and cake fillings. They are also served stewed with game, meats, and as a tarty side dish. This haw deserves the highest consideration of the American public as a new fruit for the home, as the flavor is of such a nature that it appeals straightway to practically all European and American people. The trees are slow growers and thrive especially in sandy but rich soil and in regions where the summers are warm and the winters only moderately cold. They are able to withstand considerable drought."

For an illustration of the edible fruit of this Chinese cultivated hawthorn, see Plate VIII.

35457. PYRUS CHINENSIS Lindley. **Pear.**
(*Pyrus sinensis* Lindl.)

"(Tsinan, Shantung, China, April 5, 1913.) A large, coarse variety of Chinese pear, called *ma huang li*, meaning 'yellow horse pear.' Grown in the vicinity of Tsinan, Shantung. The pear possesses a very agreeable aroma, but a coarse, watery flesh, like so many of the Chinese pears."

35456 to 35458—Continued.

35458. CHAENOMELES CATHAYENSIS (Hemsl.) Schneider. **Quince.**
(*Pyrus cathayensis* Hemsl.)

"(Tsinan, Shantung, China, April 4, 1913.) The Chinese quince, which is used by the rich Chinese as a room perfumer, but foreign missionaries have learned to use it for making preserves and jellies. The Chinese call it *mu kua*, meaning 'wooden gourd.' This species is said to have come from Chowcho, Shantung Province."

35459. LOVOA SWYNNERTONII E. G. Baker.

From Mount Silinda, Melsetter, Rhodesia. Presented by Mr. O. J. Omer, American Board Mission in South Africa, through the United States Forest Service. Received May 27, 1913.

"Brown mahogany. This tree produces a splendid dark-brown wood of great strength and durability and is found only in our forest here at Mount Silinda (the only forest of large trees in Rhodesia). The tree grows to a height of 150 to 200 feet, diameter 5 to 8 feet, a 150-foot tree requiring about 150 years for growth. It is, I understand, a true mahogany, and it is because of its rareness that I thought you might take an interest in experimenting with it in America. The temperature here varies from about 30° F. in the cold season to about 80° F. in the shade during the summer months; rainfall, 70 inches, more than half of this falling during the three summer months; elevation, 5,000 feet; distance to sea, 150 miles; prevailing winds from the sea." (*Omer.*)

"It is a fact worth mentioning that other trees from Rhodesia have done particularly well in Florida." (*David Fairchild.*)

35460. PIPER NIGRUM L. **Black pepper.**

From Malay Peninsula. Presented by Mr. I. Henry Burkhill, director of the Botanic Gardens, Singapore, Straits Settlements. Received April 14 to 16, 1913.

"A woody climber, native to the Old World Tropics, widely grown for its aromatic berries, from which the black pepper of commerce is made. May succeed in extreme southern Florida." (*R. H. True.*)

35461 and 35462. ASPARAGUS spp. **Asparagus.**

From Jerusalem, Palestine. Presented by Mr. Ernest F. Beaumont. Received May 27, 1913.

35461. ASPARAGUS PALAESTINUS Baker.

Distribution.—A wild asparagus found along the banks of the Jordan, in Palestine.

35462. ASPARAGUS ACUTIFOLIUS L.

Plants.

35463. JUGLANS REGIA L. **Walnut.**

From Tabriz, Persia. Presented by Mr. Gordon Paddock, American consul. Received May 31, 1913.

"From a tree known to bear the finest variety of the soft-shelled walnut to be had in this district." (*Paddock.*)

Cuttings.

35464. CITRUS sp. **Orange.**

From Bas Obispo, Canal Zone. Presented by Mr. S. P. Verner. Received May 29, 1913.

"The finest oranges I ever saw." (*Verner.*)

Cuttings.

35465. HIPPEASTRUM spp. **Amaryllis.**

A mixed collection of amaryllis grown at the greenhouses of the Department of Agriculture, Washington, D. C.

"These seedlings were raised from 13 crosses of named sorts under numbers, and I find that after the crosses were made the bulbs were renumbered, so I am unable to give their pedigree. My records show the crosses were made February 12, 14, 16, and 18, 1910. The seed was gathered March 26 and sown March 29, 1910. Seedling bulbs were potted into 2-inch pots from seed boxes June 2, 1910. The seedling bulbs were grown without a check and flowered in January and February, 1912. On February 27, 1913, we had on exhibition 580 of these amaryllis bulbs in flower at one time." (*E. M. Byrnes.*)

35466 to 35469.

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received May 31, 1913.

Seeds of the following; quoted notes by Mr. Barrett:

35466. CUCUMIS SATIVUS L. **Cucumber.**

"Form oblong, transversely more or less triangulate, slightly concave; average weight 0.85 kilogram; color brown, surface cracked exposing the flesh, giving the cucumber the appearance of being reticulated. The variety is vigorous, productive, resistant to insect pests, and of excellent quality."

35467. HERITIERA LITTORALIS Dryander. **Dungon-late.**

See S. P. I. No. 35413 for previous introduction and description.

35468. OROXYLON INDICUM (L.) Vent. **Pinkapinkahan.**

See S. P. I. No. 35415 for previous introduction and description.

35469. PARKIA TIMORIANA (DC.) Merrill. **Cupang.**
(*Parkia roxburghii* Don.)

"A large ornamental deciduous forest tree attaining a height of 25 to 40 meters, with bipinnate, feathery, attractive leaves and large pods upward of 30 centimeters long, containing from 15 to 20 seeds. The pods are relished by the native cattle and the seeds are roasted and used as a substitute for coffee by the Filipinos."

See S. P. I. No. 35035 for previous introduction.

35470. PHORMIUM TENAX Forster. **New Zealand flax.**

From Wellington, New Zealand. Presented by Mr. E. Clifton, director, Fields and Experimental Farms Division, Department of Agriculture, Industries, and Commerce, through Mr. F. B. Hyde, Washington, D. C. Received June 6, 1913.

"This is the seed of the ordinary variety of *Phormium tenax* used for commercial purposes." (*Clifton.*)

See S. P. I. No. 34720 for previous introduction.

35471 and 35472. LOTUS spp.

From St. Andrews, Scotland. Collected by Mr. G. W. Oliver, of the Bureau of Plant Industry, August 26, 1911.

35471. LOTUS CORNICULATUS L.

"Large-growing variety found near the seashore growing among grasses of a very tufty nature." (*Oliver.*)

Plants.

35472. LOTUS sp.

"Dwarf form found growing near the seashore among grasses of a tufty nature and is found on the golf links, where it competes with the closely clipped grasses." (*Oliver.*)

Plants.

35473. CARICA PAPAYA L. **Papaya.**

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received June 7, 1913.

"Seeds of the more or less distinct form of the Hawaiian papaya. This form has been bred up by Mr. P. J. Wester at the Lamao Experiment Station; it is about 90 per cent hermaphrodite." (*Barrett.*)

35474 and 35475. ARNICA spp.

From Kew, England. Presented by Sir David Prain, director, Royal Botanic Gardens. Received February 26, 1913.

35474. ARNICA MONTANA L. **Arnica.**

"A yellow-flowered composite, growing a foot or more in height. Native of the mountains of Europe. The tincture of the petals is successfully used as a healing application to wounds and bruises. Succeeds under cultivation in cool latitudes and high elevations. Not adapted to culture in the South." (*W. Van Fleet.*)

35475. ARNICA SACHALINENSIS A. Gray. **Arnica.**

Distribution.—An herbaceous perennial found on Sakhalin Island.

35476 to 35478. LUPINUS spp. **Lupine.**

From New York, N. Y. Purchased from J. M. Thorburn & Co. Received June 6, 1913.

For the experiments of the Office of Forage Crop Investigations.

35476. LUPINUS ANGUSTIFOLIUS L.

"Blue."

35477. LUPINUS ALBUS L.

"White."

35478. LUPINUS LUTEUS L.

"Yellow."

35479 and 35480.

From Russia. Presented by Mr. Alexander Kol, Russian Government Assistant Agricultural Commissioner, St. Louis, Mo. Received June 9, 1913.

35479. AVENA SATIVA L. **Oat.**

"Russian Agricultural Agency, No. 304. Giant oats. Bezenchuk Experiment Station, Government of Samara." (*Kol.*)

35480. TRITICUM DURUM Desf. **Durum wheat.**

"Russian Agricultural Agency No. 300. Spring wheat, *Beloturk*, Bezenchuk Experiment Station, Samara." (*Kol.*)

35481. ARGANIA SPINOSA (L.) Skeels. **Argan.**
(*Argania sideroxylon* Roem. and Schult.)

From Tangier, Morocco. Procured through Mr. Maxwell Blake, American consul general. Received June 11, 1913.

"Seeds of this year's crop." (*Blake.*)

35482. MANGIFERA VERTICILLATA Robinson. **Baúno.**

From the Philippine Islands. Presented by Mr. W. S. Lyon, Manila. Received June 13, 1913.

See S. P. I. Nos. 34353 and 34431 for previous introductions and descriptions.

Plant.

35483. ANNONA SQUAMOSA L. **Anona.**

From Tampico, Mexico. Presented by Mr. Clarence A. Miller, American consul. Received June 12, 1913.

35484. CITRUS HYSTRIX DC. **Cabuyao.**

From Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Division of Horticulture, Lamao Experiment Station. Received June 14, 1913.

"A large, thorny tree, 6 to 12 meters in height; the leaves are 16 to 24 centimeters long, and broadly winged; in fact, the wing area sometimes exceeds the leaf area. The species is quite variable. The form sent you has smooth, oblate to pyriform-turbinate shaped fruits. Surface greenish lemon, rind medium thick, flesh greenish, juicy, sharply acid, aromatic, contained in 12 to 14 loculi. The fruit makes a fair 'ade' and is eaten with rice by the natives; it is also used in cleaning clothes. As a fruit the cabuyao has little value, but it may, on account of its remarkable vigor, be a valuable stock for other citrus fruits; in fact, I have several imported varieties growing on it now." (*Wester.*)

35485 to 35490. XANTHOSOMA spp. **Yautia.**

From Trinidad, British West Indies. Presented by Mr. W. C. Freeman, assistant director of agriculture and Government botanist. Received June 12, 1913.

One tuber of each of the following yautias:

35485. "No. 1. *Garl blanc*, 'White Itch,' so named from the small bumps, supposed to resemble pustules, with which it is covered."

35486. "No. 2. *Garl noir*, 'Black Itch.'"

35487. "No. 3. *Caylaimbe.*"

35488. "No. 4. *Belle Mamzelle.*"

35489. "No. 5. *Parim.*"

35490. "No. 6. *Mark.*"

"These are all patois names, and for most of them I can offer no derivation or meaning." (*Freeman.*)

35491 to 35569.

From Chile. Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received June 10, 1913.

Quoted notes by Mr. Wight.

For previous large introductions of Chilean potatoes, see S. P. I. Nos. 31411 to 31464 and 31537 to 31547, sent in by Mr. José D. Husbands, Limavida, Chile.

35491 to 35569—Continued.

35491 to 35503. SOLANUM TUBEROSUM L. **Potato.**

"All seeds of cultivated potatoes were subject to open pollination."

35491. "(91.) *Rosada.* From Panguipulli."

35492. "(125.) A variety called *Coraida.* From Panguipulli."

35493. "(126.) *Blanca prima riza.* From Panguipulli."

35494. "(163.) *Torreno.* From Temuco, and much grown about Nuevo Imperial. Regarded as an excellent keeper."

35495. "(164.) *Bastoniza blanca.* From Llifen."

35496. "(165.) *Bastoniza colorada.* From Llifen."

35497. "(166.) *Artellera.* From Temuco. Said to be better than *Pe huencha*, which it closely resembles."

35498. "(170.) *Bastoniza.* From Panguipulli."

35499. "(172.) *Alemana.* From Puerto Montt. The fact that this is called *Alemana* does not necessarily mean that it came from Germany, but merely that it was grown by a German in Chile."

35500. "(173.) *Blanca.* From Temuco."

35501. "(176.) This is a local variety at Puerto Montt, but I could not learn the name. It is said to be an excellent variety with very yellow flesh."

35502. "(177.) *Caraila.* Very similar to *Reina* and perhaps identical with it. A good variety much grown in Ancud, Chiloe."

35503. "(178.) *Camota.* From Ancud, Chiloe."

35504 to 35506. SOLANUM spp.

Tubers of the following:

35504. "(199.) This form has probably never been introduced into cultivation before. It grows wild in a region, so far as known, never inhabited. Not even is there any tradition among the Indians of this part of the island having been inhabited, and the locality can be reached only at low tide. The tubers are sometimes 3 and 4 inches long. From Punta Tablaruca."

35505. "(200.) *Casha negra.* From Quilan."

35506. "(201.) *Casha blanca.* From Castro."

35507 to 35532. SOLANUM TUBEROSUM L. **Potato.**

35507. "(202.) *Morada.* From Quilan."

35508. "(204.) *Villaroela*, also known as *Antehuapa.* An excellent variety, one of the best in fact. From Castro."

35509. "(205.) From Castro."

35510. "(206.) From Castro."

35511. "(207.) From Castro."

35512. "(208.) From Castro."

35513. "(211.) A remarkable potato that has persisted in a garden in Castro for 20 years without replanting and in spite of efforts to destroy it. There is very little frost in Castro."

35514. "(212.) *Mantequilla.* The celebrated yellow potato of Peru. This was originally brought from the Oroya Valley in Peru in 1882 to Puerto Montt, Chile, and is now grown to a limited extent at Calanco and in Chiloe. It is usually considered necessary to remove the blossoms, otherwise few tubers are obtained. Perhaps the most yellow of any variety known. Should be compared with the same variety direct from Peru, where, however, it is known by a different name. From Castro."

35491 to 35569—Continued.

35515. "(213.) *Petiteta.* From Quilan."

35516. "(214.) These are apparently 12 different varieties picked out of the warehouse at Castro. The natives bring them in usually with many varieties mixed together, and I could get no name for these."

35517. "(215.) *Camota.* From Castro."

35518. "(216.) *Camota.* From Quilan."

35519. "(217.) *Pecun negra.* From Castro."

35520. "(218.) Another variety without name. From Castro."

35521. "(220.) *Francesa blanca.* From Ancud."

35522. "(221.) *Francesa colorada.* From Ancud."

35523. "(222.) Unknown variety. From Ancud."

35524. "(235.) *Tronco.* From Talcahuano."

35525. "(236.) These came from a different lot, but perhaps the same variety. From Talcahuano."

35526. "(237.) *Zembrana.* From Talcahuano."

35527. "(243.) *Chancha.* An early variety. From Chillan. Also a variety in Peru of the same name."

35528. "(244.) *La Ulloana.* From Chillan."

35529. "(245.) *Doma.* From Chillan."

35530. "(247.) From Chillan."

35531. "(248.) *Cazuela.* From Santiago."

35532. "(253.) Apparently growing in a wild state for several years in a ravine in the city of Valparaiso."

35533 to 35535. ULLUCUS TUBEROSUS.

"In some localities tubers of this plant are known as *papa liza* and in others as *ulluco.* They are of various colors, red, pink, olive, and yellow, with more or less intermediate shades and some even variegated. They are grown at considerable elevation and used in soups in much the same manner as the potato."

35533. "(257.) *Papa liza amarilla.*"

35534. "(258.) *Papa liza colorada.*"

35535. "(259.) *Papa liza.* Apparently a mixture of the red and yellow. This vegetable is quite extensively grown at the higher altitudes around Lake Titicaca, and in fact may be almost the only one grown in that region. It is said to withstand the frost better than the ordinary potato."

35536 to 35546. SOLANUM TUBEROSUM L.

35536. "(261)."

35537. "(263.) *Chinata.*"

35538. "(264.) *Tingo.*"

35539. "(266.)"

35540. "(269.)"

35541. "(271.)"

35542. "(272.)"

35543. "(273.)"

35544. "(275.)"

35545. "(276.)"

35546. "(277.)"

35547. SOLANUM sp.

"(94.) A wild solanum from Panguipulli. No tubers were found, but under certain conditions they are probably produced."

35491 to 35569—Continued.

35548 to 35561. SOLANUM BRIDGESII A. DC.

"These seeds were gathered from several localities and the plants show some variation, but the differences are too slight for even varietal distinctions."

35548. "(97.) Similar to number 94 (S. P. I. No. 35547). From Panguipulli."

35549. "(98.) From Lancatraro, on the south side of Lago Villarica."

35550. "(112.) North side of Lago Villarica. Does not appear to differ from the other wild solanums of the region."

35551. "(131.) Apparently the same as found at Lago Villarica. Between Lago Villarica and Lago Calafquen."

35552. "(147.) From Lancatraro. Identical with the one on the north side of Lago Villarica (S. P. I. No. 35550)."

35553. "(154.) From Panguipulli. February 24, 1913."

35554. "(155). Many of these vines were 10 and 12 feet long and produced an enormous quantity of berries. Molco, February 26, 1913."

35555. "(156.) West end of Lago Rinihue. Fruit nearly black. February 26, 1913."

35556. "(157.) San Martin, Argentina. March 11, 1913."

35557. "(158.) San Martin, Argentina."

35558. "(159.) Near Banos Chi huio. The most abundant in this locality of any through which I passed."

35559. "(160.) From Llifen. March 8, 1913."

35560. "(161.) West end of Lago Ranco on the road to Lan Union. March 9, 1913."

35561. "(162.)"

35562 to 35564. SOLANUM TUBEROSUM L.

35562. "(197.) Seeds of the cultivated potato which bore very large edible berries, some of them 1½ inches in diameter. Possibly a new fruit can be developed from this variety. They were produced in great abundance. From Quilan."

35563. "(198.) Same as 197 (S. P. I. No. 35562), but the fruits smaller. These fruits or seeds are doubtless from more than one variety, as no effort is made to keep varieties separate in Chiloe and often one finds a dozen or more in the same row."

35564. "(223.) *Mantequilla*. From Castro. A yellow potato."

Seeds.

35565. SOLANUM sp.

"(224.) *Casha blanca*. From Castro."

Seeds.

35566 to 35569. SOLANUM TUBEROSUM L.

35566. "(225.) Unknown variety. From Castro."

Seeds.

35567. "(226.) Seeds of the cultivated potato, varieties unknown. From Island of Que hui."

35568. "(241.) These seeds came from fruit without calyx lobes, mixed with the variety *Mantequilla*. They should be grown separately to see if it is really a different form. From Castro."

A yellow potato known in Chiloe as *Mantequilla*.

35491 to 35569—Continued.

35569. "(242.) Apparently *Rosada*. From Chillan."

Tubers.

35570. PANICUM MILIACEUM L. **Proso.**

From Russia. Presented by Mr. Alexander Kol, Russian Government Assistant Agricultural Commissioner, St. Louis, Mo. Received June 9, 1913.

"Proso millet. Province of Simbirsk. From K. Svetlikoff."

35571 and 35572. ERIOBOTRYA JAPONICA (Thunb.) Lindl. **Loquat.**

From Naples, Italy. Presented by Dr. Gustav Eisen, California Academy of Sciences, San Francisco, Cal. Received July 2, 1913.

35571. "Seeds from one of the best loquat trees, of the variety *Apple*, in Boscotrecase." (*Eisen.*)

35572. "Loquat, variety *Pear*." (*Eisen.*)

35573 and 35574. PHOENIX DACTYLIFERA L. **Date.**

From Heyel, central Arabia. Presented by Mr. Emil Saur, American consul, Bagdad, Turkey, who procured them from the Sheik of Heyel. Received June 9, 1913.

35573. "*Shakra*." Seeds. **35574.** "*Sukkari*." Seeds.

From the interior of the Arabian peninsula, both varieties occurring only at Heyel, from which place the difficulties of transportation make the introduction of offshoots practically impossible.

35575. MELILOTUS ALBA Desr. **White sweet clover.**

From Lawrence, Kans. Purchased from the Barteldes Seed Co. Received July 24, 1913.

35576. VANGUERIA INFAUSTA Burch.

From Berea, Durban, Natal. Presented by Dr. J. Medley Wood, director, Natal Herbarium. Received July 7, 1913.

"A small tree, 6 to 7 feet high, with few and rather thick branches. All younger parts densely tomentose, the upper surface of the leaves becoming scabrid with age. Leaves 2 to 6 inches long, 2 to 4 inches wide, ovate, ovate elliptical, or suborbicular, bluntly pointed, and having one-half inch petioles. Cymes axillary, forked, many flowered, 3 inches across. Flowers green; calyx lobes short, triangular, tomentose, caducous, and absent from the fruit. Corolla tube much longer, tomentose externally, with spreading 5-fid limb. Stamens in the throat of the corolla, erect, oblong, on a subulate filament. Ovary five celled, five ovuled; fruit about 1 inch diameter, globose, glabrous when nearly ripe, usually some ovules abortive. Eastern and Transkeian Conservancies, Natal, Transvaal, and Rhodesia; of no forestal importance, and usually in open country. In 'Flora of Tropical Africa,' it is stated, 'Burchell states that this plant was regarded by the Bachapins as bewitched and unlucky, and therefore unfit for firewood, and that the fruit is not edible. It is, however, edible in other parts of South Africa, and is the wild medlar of the colonists; in Kafirland it is an excellent fruit tree, and the fruit surpasses our medlar.' That is not high praise, but even that is more than I have found it to deserve, but I have seldom found the shrub, and may have missed its best condition. In view of its being the host plant of a fungus *Hemileia woodii* K. and C., closely allied to the coffee disease, and its probability of being subject to the latter also, coffee planters should keep a watch on this shrub." (*Sim, Forest Flora of Cape Colony.*)

35577. Hibiscus cannabinus L. **Ambari.**

From Pusa, India. Presented by Mr. A. Howard, Agricultural Research Institute, through Mr. L. H. Dewey, of the Bureau of Plant Industry. Received July 7, 1913.

"Seeds of an improved type developed by plant-breeding methods under the direction of Mr. Howard. This fiber plant, known as Ambari, Deccan hemp, Bimlipitam jute, Java jute, and Mesta pat, is an annual, similar in appearance to hemp, but yielding a fiber intermediate in character between India jute (Corchorus) and China jute (Abutilon). Adapted to rich alluvial soils in the Southern States, but not recommended for commercial cultivation in this country until mechanical methods are devised for preparing the fiber." (*L. H. Dewey.*)

35578 and 35579.

From Burringbar, New South Wales, Australia. Presented by Mr. B. Harrison. Received June 24, 1913.

35578. Eugenia myrtifolia Sims. **Australian rose-apple.**

Distribution.—An evergreen shrub found in Queensland and New South Wales in Australia.

35579. Trichosanthes anguina L. **Snake gourd.**

"Grows from 3 to 6 feet long and is very prolific." (*Harrison.*)

Introduced as the Guada bean; sold throughout the Tropics as a wonderfully productive and valuable vegetable. So common in India that the high price charged for the seeds is entirely unwarranted.

35580 and 35581.

From Dondo, Angola, Africa. Presented by Mr. W. P. Dodson. Received June 26, 1913.

35580. Rubus pinnatus Willd. **Raspberry.**

"The wild raspberry I found in the jungle of this part called the 'Libolo country.' The vine is a very vigorous one, and the main stem I found sometimes over one-half inch in diameter, much stouter at the main stem, and as dry and tough on the outside as the small limb of a tough tree. It was thorn covered. From this it branched out in many directions and threw out stout and very vigorous shoots 20 feet. I pruned these the first year I found them, and the next season they did not bear so well. I had to cut away the awfully fierce tangle to get anywhere near it. It may have been disturbed. This year the fruit seems not so fine, but that may be because my duties have compelled me to let the jungle close in again on it. The raspberry matures here twice a year." (*Dodson.*)

Distribution.—Upper and Lower Guinea and in Cape Colony.

35581. Elaeis guineensis Jacq. **African oil palm.**

"Nuts of the oil palm, which exists in such vast quantities on the west coast of Africa from Sierra Leone down below us. We are about 9° south, in the interior of the vast Province of Angola. The variety the natives name *Sombo* is the very finest. When the tree is a fine one, as in this case, the nut proper is very small, while the meat of the nut, from which the oil is extracted by boiling and pressure, is plentiful. The taste is also finer. These nuts were given me by the chief of Ndunga, at whose capital we have our home." (*Dodson.*)

35582 to 35586. CARICA PAPAYA L. **Papaya.**

From Boma, Belgian Kongo. Collected by the governor general at the request of the director, Ministry of the Colonies, Brussels, Belgium. Received June 23, 1913.

Seeds of the following; quoted notes by the director:

35582. "Medium size; taste rather agreeable."

35583. "Smaller size; certain fruits have a better taste."

35584. "These fruits are very small, of the size of a large orange, almost insipid."

The native name of these three varieties is "*Paie-paie.*"

35585. "Of Ceylon. Fruits rather attenuated; taste very savory."

35586. "*Elegantissima.* Fruit shorter than the preceding and larger."

35587. CYRTOSTACHYS LAKKA Beccari.

From Singapore, Straits Settlements. Presented by Mr. I. Henry Burkhill, director of the Botanic Gardens. Received June 24, 1913.

Distribution.—A tall, slender palm found in the vicinity of Singapore and on the island of Borneo.

35588. ZEA MAYS L. **Corn.**

From La Paz, Bolivia. Presented by Mr. Horace G. Knowles, American minister. Received May 9, 1913.

"As this corn is grown at a very high altitude and where the nights are quite cold, average 38° to 42° F., it should grow well in our Northern States. Its fine texture and snow-white color permit it to make a flour fine almost as wheat. As will be seen, the grains are twice the size of our southern white corn, and that should result in a much larger production per acre than our American corn." (*Knowles.*)

35589. CARICA PAPAYA L. **Papaya.**

From St. Croix, Danish West Indies. Presented by Mr. Longfield Smith, Agricultural Experiment Station. Received June 18, 1913.

"Seeds of the pawpaw just received from Mr. G. P. Wilder, of Honolulu, Hawaii, and I am sending you some of it. My trees have been planted only about 10 months and are not bearing." (*Smith.*)

35590 to 35592.

From Noria, Sinaloa, Mexico. Presented by Don Nat. O. y Osuna. Received June 14, 1913.

Seeds of the following; quoted notes by Mr. Osuna, except as indicated:

35590. ANNONA LUTESCENS Safford.

"The fruit is of a delicious flavor and relished by all."

"*Annona lutescens* is closely allied to *A. reticulata* L., from which it differs in its broader leaves and its yellow fruit. In general appearance the fruit resembles very closely the common alligator apple of tropical mangrove swamps (*A. glabra* L.). The fruit is broadly heart-shaped or conoid, 8 to 9 centimeters (3 to 4 inches) in diameter, yellow when ripe, rounded at the apex, resembling that of *A. reticulata;* pulp sweetish but insipid, adhering to the seeds, tallowlike, with minute hard granules." (*Safford, Classification of Annona, Cont. U. S. Nat. Herb., vol. 18, p. 42–43, 1914.*)

35590 to 35592—Continued.

35591. ENTEROLOBIUM CYCLOCARPUM (Jacq.) Griseb.

"*Quinacastle.* A tree which grows to enormous size, 4 feet or more in diameter. Being an evergreen, it makes a beautiful shade tree. I have one in my yard which shades an area 150 feet in diameter. The wood is used for chests, trunks, closets, etc., because worms or bugs will not enter it."

35592. HURA CREPITANS L. **Sand-box tree.**

"*Haba.* Another tree which grows to a large size and will do well in a dry climate. The cattle eat the falling leaves the year round and do well on them. The lumber is used for making tanks, vats, etc."

Distribution.—A shade tree about 40 feet tall, bearing poplarlike leaves, found throughout tropical America and the West Indies, and often cultivated in other warm countries.

35593 and 35594.

From Jerusalem, Palestine. Presented by the American colony. Received June 18, 1913.

35593. MEDICAGO LITTORALIS Rhode.

"Found at Caesarea, near the sea."

See S. P. I., No. 29914 for previous introduction.

35594. LALLEMANTIA IBERICA (Bieb.) Fisch. and Meyer.

"Wild near Jerusalem."

See S. P. I. No. 29932 for previous introduction and description.

35595. SOLANUM TUBEROSUM L. **Potato.**

From Erfurt, Germany. Purchased from Messrs. Haage & Schmidt. Received May 8, 1913.

These potatoes were imported for the use of the pathologists and plant breeders of the Bureau of Plant Industry.

35596 to 35598. HIBISCUS spp.

From Port of Spain, Trinidad, British West Indies. Presented by Mr. E. N. Reedy. Received June 17, 1913.

Cuttings.

35596. "Salmon, a very beautiful variety." (*Reedy.*)

35597. "White." **35598.** "Yellow."

35599. BLIGHIA SAPIDA Koenig. **Akee.**

From Kingston, Jamaica, British West Indies. Presented by Mr. W. Harris, superintendent of public gardens. Received June 14, 1913.

See S. P. I. No. 35232 for previous introduction.

35600. SOJA MAX (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

Grown at the Plant Introduction Field Station, Rockville, Md., under Yarrow No. 288. Original seed received from Pomona College, Claremont, Cal., in 1911.

"It makes a remarkable growth of vines and has extremely large root nodules. Two bushels of seed were secured last year, and this has all been planted this spring." (*J. M. Rankin.*)

35601 to 35657.

Collected by Mr. Frank N. Meyer, agricultural explorer. Received June 14, 1913.

Seeds of the following; quoted notes by Mr. Meyer:

35601 to 35609. Ziziphus jujuba Miller. **Jujube.**
(*Ziziphus sativa* Gaertn.)

35601. "(Tsinan, Shantung, China. No. 1b. April 4, 1913.) A variety of jujube called *Tze lin tsao*, meaning 'scarlet jujube.' The fruits are large, often the size of small hens' eggs, and of round, elongated shape. Skin fairly hard, of a rich dark-brown color, meat firm and of sweet flavor. Scions sent under No. 1023 (S. P. I. No. 35255)."

35602. "(Peking, China. No. 2b. April 19, 1913.) A variety of jujube, called *Pou hong ta tsao*, meaning 'inflated large jujube.' Fruits large, of elongated shape, skin hard, of brown-red color, flesh of a spongy texture and not very sweet."

35603. "(Tsinan, Shantung, China. No. 3b. April 10, 1913.) A variety of jujube, called *Yuan ling tsao*, meaning 'round jujube.' Fruits medium large, of round shape, skin fairly thin, of mahogany-brown color, meat firm and medium sweet. Is much used in the smoked state and bears different names then."

35604. "(Tientsin, China. No. 4b. April 16, 1913.) A variety of jujube, called *Ta hong tsao* meaning 'large red jujube.' Fruits large, of marked elongated form, skin medium hard, of a reddish-brown color, meat firm and of medium, sweet taste; seed large."

35605. "(Peking, China. No. 5b. April 19, 1913.) A variety of jujube, called *Ta hsiao hong tsao*, meaning 'large small red jujube.' Fruits of medium size, round, oblong in shape, skin soft, of a shining red-brown color, meat firm and lighter in color than with most jujubes, of very sweet taste. This variety is a much-beloved market sort in Peking."

35606. "(Tsinan, Shantung, China. No. 6b. April 4, 1913.) A variety of jujube called *Hsiao tsao*, meaning 'small jujube.' Fruits small, of elliptical shape, skin soft, of bright brown-red color. Meat firm and quite sweet. This variety is very popular with the country people, who eat them raw, stewed, and cooked in proso cakes. Scions sent under No. 1025 (S. P. I. No. 35257)."

35607. "(Tientsin, China. No. 7b. April 16, 1913.) A variety of jujube, called *Hsiao tsao*, meaning 'small jujube.' This variety comes from the Tientsin district and is slightly different from the preceding one; otherwise the same remarks apply to it."

35608. "(Tientsin, China. No. 8b. April 16, 1913.) A variety of jujube, called *Rho hsiao tsao*, meaning 'meaty small jujube.' Of medium size, somewhat plumper in shape than the ordinary small jujube. Meat of a very firm texture and very sweet. In Tientsin considered to be one of the best market varieties."

35609. "(Peking, China. No. 9b. April 19, 1913.) A variety of jujube, called *Pou hong hsiao tsao*, meaning 'inflated red small jujube.' Fruits larger than the ordinary small jujube. Skin rather soft, meat brownish, sweet, and of a juicy, spongy nature."

35610 to 35613. Juglans regia sinensis DC. **Walnut.**

35610. "(Tsinan, Shantung, China. No. 1810a. April 4, 1913.) A large variety of Chinese walnut said to occur around Tsinan, Shantung.

35601 to 35657—Continued.

Chinese name *Hoto*. Chinese walnuts may be expected to thrive, especially in the warmer valleys of the southern Rocky Mountain regions, as the climate of these regions very much resembles that of northeastern China."

35611. "(Peking, China. No. 1811a. April 19, 1911.) Large walnuts said to occur in the mountains to the northwest of Peking. Chinese name *Ta hoto*. See notes on No. 1810a (S. P. I. No. 35610)."

35612. "(Peking, China. No. 1812a. April 19, 1913.) A rare variety of Chinese walnut, being quite flat. Said to come from the mountains to the northwest of Peking. Chinese name *Ping do hoto*."

35613. "(Peking, China. No. 1813a. April 19, 1913.) A large variety of Chinese walnut, said to occur in the mountains west of Peking. Chinese name *Hoto*. See notes under No. 1810a (S. P. I. No. 35610)."

35614. PINUS sp. **Pine.**

"(Tientsin, China. No. 1814a. March 27, 1913.) A conifer said to be the ordinary pine of north China, the seed coming from Honan. To be experimented with in the drier parts of the United States. Chinese name *Sung shu*."

35615. PINUS KORAIENSIS Sieb. and Zucc. **Korean pine.**

"(Tientsin, China. No. 1815a. March 27, 1913.) A pine said to come from southern China, but this information is probably incorrect, as it seems to be the ordinary *Pinus koraiensis*. The white, oily kernels are used by the Chinese in high-class confectionery and in special cakes. Chinese name *Sung tze*."

35616. GLEDITSIA SINENSIS Lam. **Honey locust.**

"(Tsinan, Shantung, China. No. 1816a. April 4, 1913.) A honey locust, of which the pods are used as a substitute for soap in washing the hair and fine clothing. The tree will be of value as a medium-sized shade tree in the drier parts of the United States where the winters are not too severe. Chinese name *Tsau chiaushu*."

35617. ZEA MAYS L. **Corn.**

"(Tientsin, China. No. 1817a. April 16, 1913.) A large variety of flint maize grown in the region around Tientsin. Chinese name *Hai yumili*."

35618 to 35620. VIGNA SINENSIS (Torner) Savi. **Cowpea.**

35618. "(Tsinan, Shantung, China. No. 1818a. April 10, 1913.) A white-seeded variety of cowpea used locally as human food, either fresh or dry. Chinese name *Pai chiang doh*."

35619. "(Tientsin, China. No. 1819a. April 16, 1913.) A white-seeded variety of cowpea used as human food, either fresh or dry. Chinese name *Pai chiang doh*."

35620. "(Tsinan, Shantung, China. No. 1820a. April 10, 1913.) A rare variety of speckled cowpea used boiled in soups. Chinese name *Hong chiang doh*."

35621. DOLICHOS LABLAB L. **Bonavist bean.**

"(Tsinan, Shantung, China. No. 1821a. April 4, 1913.) A white-seeded variety of lablab bean eaten fresh like string beans, also used much as an ornamental vine for covering porches and trellises. Thrives especially well in regions with dry air. Chinese name *Pai pien doh*."

35601 to 35657—Continued.

35622 to 35628. Soja max (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

35622. "(Tsinan, Shantung, China. No. 1822a. April 10, 1913.) A small black soy bean locally used to produce bean sprouts. Chinese name *Hsiao ghae doh.*"

35623. "(Tsinan, Shantung, China. No. 1823a. April 10, 1913.) A soy bean which is black outside and green inside. Used boiled when half sprouted as a human food. Chinese name *Lu li ghae doh.*"

35624. "(Tsinan, Shantung, China. No. 1824a. April 10, 1013.) A soy bean which is black outside and yellow inside. Used boiled when sprouted, also employed in soy-bean sauce production. Chinese name *Tau hsing ghae doh.*"

35625. "(Tsinan, Shantung, China. No. 1825a. April 10, 1913.) A good variety of yellow soy bean used in the manufacture of sauce, bean curd, bean oil for sprouts, etc. Chinese name *Huang doh.*"

35626. "(Tsinan, Shantung, China. No. 1826a. April 10, 1913.) A large green soy bean, considered locally a fine variety. Used like the preceding one (S. P. I. No. 35625), and besides that it is also eaten roasted and salted as an appetizer before meals. Chinese name *Tsing doh.*"

35627. "(Tientsin, China. No. 1827a. April 16, 1913.) A large green variety of soy bean used like the preceding number (S. P. I. No. 35626). Chinese name *Ta tsing doh.*"

35628. "(Tientsin, China. No. 1828a. April 16, 1913.) A rare variety of soy bean, being of brown color. Used boiled in soups. Chinese name *Ta tze doh.*"

35629 to 35631. Phaseolus aureus Roxb. **Mung bean.**

35629. "(Tientsin, China. No. 1829a. April 16, 1913.) A variety of mung bean, called *Ta hi doh*, eaten boiled with rice, employed in the manufacture of bean vermicelli and also extensively used to produce bean sprouts."

35630. "(Tientsin, China. No. 1830a. April 16, 1913.) A variety of mung bean called *Mou lu doh;* used like preceding number (S. P. I. No. 35629)."

35631. "(Tientsin, China. No. 1831a. April 16, 1913.) A variety of mung bean of which the seeds are nonshining. Chinese name *Nan lu doh.* Used boiled with rice."

35632. Phaseolus angularis (Willd.) W. F. Wight. **Adzuki bean.**

"(Tientsin, China. No. 1832a. April 16, 1913.) A good variety of adzuki bean called *Chi hsiao doh.* Used boiled in soups or eaten with rice, also ground up into a paste together with brown sugar and used as a filling in special cakes and buns, in which state children especially are very fond of it."

35633. Cannabis sativa L. **Hemp.**

"(Tsinan, Shantung, China. No. 1833a. April 9, 1913.) A variety of hemp, cultivated around Tsinan, said to produce especially strong fiber. Chinese name *San ma.*"

35634. Foeniculum vulgare Hill. **Fennel.**

"(Tsinan, Shantung, China. No. 1834a. April 10, 1913.) A sweet fennel used by the Chinese as a flavoring herb in soups and in sauces, when young. The seeds are baked in certain cakes and also taken medicinally in cases of cold in the stomach. Sow out late, as it is very sensitive to frosts. Chinese name *Hsiao hui hsien.*"

35601 to 35657—Continued.

35635. SOLANUM MELONGENA L. **Eggplant.**

"(Near Laoling, Shantung, China. No. 1835a. March 31, 1913.) A variety of eggplant bearing large, round fruits of a white color. Very rare, even locally. Chinese name *Pai che tze*. Treat with great care."

35636. MALUS SYLVESTRIS Miller. **Apple.**
(*Pyrus malus* L.)

"(Novo Nikolayefsk, Siberia. No. 1836a. December, 1912.) A variety of apple coming from southern Russia, called *Liestnaya Antonoffka*. Received from Mr. Svend Lange, at Novo Nikolayefsk."

Seeds.

35637. PYRUS CHINENSIS Lindl. **Pear.**
(*Pyrus sinensis* Lindl.)

"(Tsinan, Shantung, China. No. 1837a. April 9, 1913.) Various varieties of cultivated pears, collected here and there. Sow out to see whether some good forms appear."

35638. MALUS SYLVESTRIS Miller. **Apple.**
(*Pyrus malus* L.)

"(Novo Nikolayefsk, Siberia. No. 1838a. December, 1912.) A variety of apple, coming from Crimea, called *Oporto*. Obtained like No. 1836a (S. P. I. No. 35636)."

35639. CHAENOMELES CATHAYENSIS (Hemsl.) Schneider. **Quince.**
(*Pyrus cathayensis* Hemsl.)

"(Tsinan, Shantung, China. No. 1839a. April 9, 1913.) A Chinese quince, the fruits of which are used by the better classes of Chinese as room perfumers. These fruits can easily be kept throughout the winter until late in spring. Some foreign missionaries have learned how to make preserves and jellies from these quinces, though the meat is quite woody. This Chinese quince grows to be a tall shrub and it might perhaps be profitable to grow it in the mild-wintered sections of the United States, so as to supply the Chinese colonies in America with one of their favorite fruits. The American people themselves may also come to like these fruits for the strong pleasant aroma they produce. Chinese name *Mu kua*."

35640. PRUNUS sp. **Cherry.**

"(Peking, China. No. 1840a. May 8, 1913.) A small, sweet, early cherry, apparently rare, appearing on the Peking market early in May. Chinese name *Ying taur*."

35641. CRATAEGUS PINNATIFIDA Bunge. **Hawthorn.**

"(Peking, China. No. 1841a. April 16, 1913.) A large-fruited variety of the edible Chinese haw, a fine fruit for preserves in all forms. Chinese name *Hong kuo*. These seeds may lie dormant for one or two years."

35642. NICOTIANA TABACUM L. **Tobacco.**

"(Tsinan, Shantung, China. No. 1842a. April 9, 1913.) A good broad-leaved variety of tobacco called *Yen ye*. Able to withstand climates with very dry air; also does not object to a fair percentage of alkali in the soil or irrigation water."

35601 to 35657—Continued.

35643 and 35644. Cucumis sativus L. **Cucumber.**

35643. "(Laoling, Shantung, China. No. 1843a. March 31, 1913.) A rare cucumber of local origin, said to be of green color, growing 2½ feet in length and of fine quality. Is always trained on trellises made from sorghum stems, so as to prevent the fruits from touching the ground. Loves a rich, sandy soil. Chinese name *Huang kua*."

35644. "(Laoling, Shantung, China. No. 1844a. March 31, 1913.) A rare variety of cucumber of local origin, said to be of white color, growing 2½ feet long and being covered with little warts and points. Is trained like the preceding number (S. P. I. No. 35643). Chinese name *Pai huang kua*. This and the preceding number may perhaps do well in countries with dry air, as the Shantung Province is decidedly semiarid."

35645 to 35657. Cucumis melo L. **Muskmelon.**

35645. "(Laoling, Shantung, China. No. 1845a. March 31, 1913.) A muskmelon said to be of small size, of yellow color, and fragile. The flesh is soft and sweet. Chinese name *Kwan tung yu mi kua*. This and the following varieties of melons all love a rich, sandy soil with a small amount of alkali in it. The Chinese melon growers claim that to obtain year in and year out the finest melons one has to grow certain melons for seed entirely; that is, the first two fruits from some selected plants should always be retained for future seed producers, for when one simply takes the ordinary melons the strain very soon runs out and the quality gets worse and worse every year. They also admit that a slight difference in soil and location has very much to do with quality and that seeds from melons that were good in one locality produce inferior melons in another locality only a few miles away."

35646. "(Near Laoling, Shantung, China. No. 1846a. March 31, 1913.) A muskmelon said to be of elongated shape, of white color, and easily breaking, while the meat is not too sweet. Chinese name *Tsiu kua*."

35647. "(Laoling, Shantung, China. No. 1847a. March 31, 1913.) A muskmelon said to be of long shape, moderate size, and of a white color. Flesh juicy. Chinese name *Yang dja tsiu kua*."

35648. "(Laoling, Shantung, China. No. 1848a. March 31, 1913.) A muskmelon said to resemble a gourd, skin dark green, flesh red and of sweet taste. A rare local variety. Chinese name *Ghu lu su kua*."

35649. "(Laoling, Shantung, China. No. 1849a. March 31, 1913.) A muskmelon said to have a very dark-colored skin; meat red and as soft as flour, ripens in July. Chinese name *Ghai mien kua*."

35650. "(Laoling, Shantung, China. No. 1850a. March 31, 1913.) A muskmelon said to have a blotched skin, growing to moderate size and being very sweet. Chinese name *Hua pi tsiu kua*."

35651. "(Laoling, Shantung, China. No. 1851a. March 31, 1913.) A muskmelon said to be of long shape, of green color with white stripes, while the flesh is juicy. Chinese name *Pa djau tsui kua*."

35652. "(Laoling, Shantung, China. No. 1852a. March 31, 1913.) A muskmelon said to be of small size, with mottled, yellow skin, while the meat is of red color and quite sweet. Chinese name *Hong yang khan kua*."

35601 to 35657—Continued.

35653. "(Loaling, Shantung, China. No. 1853a. March 31, 1913.) A muskmelon said to be of long shape and sweet taste. Chinese name *Kwan tung pantze kua.*"

35654. "(Laoling, Shantung, China. No. 1854a. March 31, 1913.) A rare local variety of muskmelon having exceedingly small seeds. Said to grow large and to be of sweet taste. Chinese name *Sze ma li kua*, which means 'sesame-seeded melon.'"

35655. "(Laoling, Shantung, China. No. 1855a. March 31, 1913.) A rare variety of muskmelon said to be round, gourdlike form. Meat white and watery. Chinese name *Sao kua.*"

35656. "(Laoling, Shantung, China. No. 1856a. March 31, 1913.) A muskmelon, said to be round, of large size, and possessing a fine, strong aroma. Chinese name *Huang hua kua*, or *Huang mien kua.*"

35657. "(Laoling, Shantung, China. No. 1857a. March 31, 1913.) Mixed Chinese muskmelons, among which some interesting types may appear. Sow out, if possible, in various localities in the semiarid belt of the United States."

35658 to 35665. CANAVALI spp.

From Calcutta, India. Presented by Mr. David Hooker, economic botanist, Indian Museum, through Mr. C. V. Piper, of the Bureau of Plant Industry. Received June 25, 1913.

Seeds of the following:

35658 and 35659. CANAVALI GLADIATUM (Jacq.) DC. **Sword bean.**

35658. "(35334.) From Poona, India. Seeds red, edible."

35659. "(35342.) From Seharunpur, India. Seeds red."

35660 to 35665. CANAVALI VIROSUM (Roxb.) Wight and Arnott.

Distribution.—The warmer parts of India and eastward to the Philippines.

35660. "(35249.) From Prome, India. Seeds gray, pods medium sized."

35661. "(35251.) From Prome, India. Seeds gray, pods small.

35662. "(35315.) From Thana, India. Seeds marbled brown and gray. Inedible."

35663. "(35324.) From Surat, India. Seeds brown and gray marbled. Inedible."

35664. "(35320.) From Kaira, India. Seeds brown and gray marbled. Inedible."

35665. "(35329.) From Belgaum, India. Seeds brown and gray marbled. Edible. Seeds of this are quite indistinguishable from the three preceding numbers."

35666. PANICUM MUTICUM Forsk.

From Peradeniya, Ceylon. Presented by Mr. C. K. Moser, American consul, Colombo, Ceylon. Received June 28, 1913.

See S. P. I. No. 29980 for previous introduction.

Plants.

INDEX OF COMMON AND SCIENTIFIC NAMES.

Abies firma, 35296.
  ×*vilmorinii*, 35173.
Abrus praecatorius, 35139.
× *Acer boscii*, 35147.
  sterculiaceum, 35174.
  villosum. See *Acer sterculiaceum*.
Adzuki bean. See *Phaseolus angularis*.
Agropyron sp., 35422.
  cristatum, 35402, 35423.
Agrostis sp., 35431.
Ailanthus cacodendron, 35259.
  glandulosa. See *Ailanthus cacodendron*.
Akee. See *Blighia sapida*.
Aleurites fordii, 35210.
Alfalfa. See *Medicago* spp.
Amaryllis. See *Hippeastrum* spp.
Ambari. See *Hibiscus cannabinus*.
Amygdalus davidiana, 35307.
  fenzliana, 35205.
  nana, 35206.
  persica, 35201.
Anagap. See *Pithecolobium lobatum*.
Annona cherimola, 35283.
  lutescens, 35590.
  muricata, 35285.
  squamosa, 35140, 35483.
Anona. See *Annona* spp.
Apio. See *Arracacia xanthorrhiza*.
Apple. See *Malus* spp.
Aralia chinensis mandshurica, 35148.
Argan. See *Argania spinosa*.
Argania sideroxylon. See *Argania spinosa*.
  spinosa, 35481.
Arnica montana, 35474.
  sachalinensis, 35475.
Arracacia xanthorrhiza, 35400.
Ash, mountain. See *Sorbus aucuparia*.
Asparagus acutifolius, 35462.
  palaestinus, 35461.
Astragalus falcatus, 35237.
Australian rose-apple. See *Eugenia myrtifolia*.
Avena sativa, 35479.
Avocado. See *Persea americana*.
Banana, wild. See *Musa ensete*.
Bansilak. See *Pithecolobium lobatum*.
Barberry. See *Berberis* spp.
Baúno. See *Mangifera verticillata*.
Bean, adzuki. See *Phaseolus angularis*.
  bonavist. See *Dolichos lablab*.
  broad. See *Vicia faba*.
  mung. See *Phaseolus aureus*.
  soy. *Soja max*.
  sword. See *Canavali gladiatum*.
Berberis caroli hoanghensis, 35176.
  cretica, 35162.
  thunbergii maximowiczi, 35163.
Betula sp., 35175.
Birch. See *Betula* sp.
Black pepper. See *Piper nigrum*.
Blighia sapida, 35232, 35599.
Bonavist bean. See *Dolichos lablab*.
Brachypodium pinnatum, 35252.
Brassica balearica, 35202.
  insularis, 35318.
  pekinensis, 35426.
Broad bean. See *Vicia faba*.
Bromus sp., 35429.
Buckwheat. See *Fagopyrum tataricum*.
Buddleia lindleyana sinuato-dentata, 35177.

Cabuyao. See *Citrus hystrix*.
Cacao. See *Theobroma cacao*.
Cajan indicum, 35348.
Camellia sasanqua. See *Thea sasanqua*.
Cananga odorata. See *Canangium odoratum*.
Canangium odoratum, 35243.
Canavali gladiatum, 35658, 35659.
  virosum, 35660 to 35665.
Cannabis sativa, 35251, 35633.
Capsicum annuum, 35322.
Caragana arborescens, 35234.
  cuneifolia, 35164.
Carica candamarcensis, 35142, 35143.
  papaya, 35264, 35418, 35473, 35582 to 35586, 35589.
Carob. See *Ceratonia siliqua*.
Castor bean. See *Ricinus communis*.
Catjang. See *Vigna cylindrica*.

Ceratonia siliqua, 35230, 35238 to 35242, 35244 to 35246.
Chaenomeles cathayensis, 35458, 35639.
Chaetochloa italica, 35337 to 35342.
Chamaecyparis obtusa, 35299.
  pisifera, 35298.
Che. See *Cudrania tricuspidata*.
Cherimoya. See *Annona cherimola*.
Cherry. See *Prunus* sp.
Chinese wood-oil tree. See *Aleurites fordii*.
Citrullus vulgaris, 35250.
Citrus sp., 35247, 35464.
  hystrix, 35484.
Clematis montana wilsonii f. *platysepala*, 35178.
Clover, crimson. See *Trifolium incarnatum*.
  golden. See *Trifolium agrarium*.
  Persian. See *Trifolium suaveolens*.
  red. See *Trifolium pratense*.
  rabbit-foot. See *Trifolium arvense*.
  white sweet. See *Melilotus alba*.
Coccothrinax garberi, 35141.
Coconut. See *Cocos nucifera*.
Cocos nucifera, 35319.
Coiron. See *Savastana* sp.
Copigué. See *Lapageria rosea*
Corn. See *Zea mays*.
Cornus bretschneideri, 35149.
Corylus mandshurica, 35288.
Cotoneaster spp., 35180 to 35183.
  salicifolia, 35179.
Cotton. See *Gossypium* sp.
Cowpea. See *Vigna sinensis*.
Crataegus pinnatifida, 35456, 35641.
Cryptomeria japonica, 35297.
Cuayote. See *Gonolobus edulis*.
Cucumber. See *Cucumis sativa*.
Cucumis melo, 35211, 35645 to 35657.
  sativus, 35466, 35643, 35644.
Cudrania tricuspidata, 35258.
Cupang. See *Parkia timoriana*.
Currant. See *Ribes* sp.
Cyrtostachys lakka, 35587.

Date. See *Phoenix dactylifera*.
Deutzia sp., 35185.
  vilmorinae, 35184.
Diospyros kaki, 35223, 35263.
Dolichos biflorus, 35343 to 35345.
  lablab, 35351 to 35354, 35621.
Dungon-late. See *Heritiera littoralis*.
Durum wheat. See *Triticum durum*.

Eggplant. See *Solanum melongena*.
Elaeis guineensis, 35150, 35581.
Eleusine coracana, 35324 to 35331.
Elymus sp., 35430, 35433.
Enterolobium cyclocarpum, 35591.
Eremurus himalaicus, 35286.
  robustus, 35165.
  turkestanicus, 35166.
Eriobotrya japonica, 35571, 35572.
Eugenia myrtifolia, 35578.

Fagopyrum tataricum, 35167.
Ficus ulmifolia, 35449.
Flax, New Zealand. See *Phormium tenax*.
Fig. See *Ficus ulmifolia*.
Fennel. See *Foeniculum vulgare*.
Foeniculum vulgare, 35634.
Fusanus acuminatus. See *Mida acuminata*.

Gleditsia sinensis, 35616.
Glycine hispida. See *Soja max*.
Gonolobus edulis, 35249.
Gossypium sp., 35315 to 35317.
Gourd, snake. See *Trichosanthes anguina*.
Grape. See *Vitis amurensis* × *riparia*.
Grass, zebra. See *Miscanthus japonicus*.
Guizotia abyssinica, 35368 to 35372.

Haba. See *Hura crepitans*.
Havas. See *Vicia faba*.
Hawthorn. See *Crataegus pinnatifida*.
Hazelnut. See *Corylus mandshurica*.
Hedysarum alpinum, 35448.
  altaicum, 35444.
  flavescens, 35445.
  hedysaroides, 35446.
  multijugum, 35447.
  obscurum. See *Hedysarum hedysaroides*.
  polymorphum. See *Hedysarum altaicum*.
  sibiricum. See *Hedysarum alpinum*.
Hemp. See *Cannabis sativa*.
Heritiera littoralis, 35413, 35467.
Hibiscus spp., 35596 to 35598.
  cannabinus, 35577.
Hippeastrum spp., 35465.
Holcus sorghum, 35213.
Honeyberry. See *Melicocca bijuga*.

Honey locust. See *Gleditsia sinensis.*
Honeysuckle. See *Lonicera* spp.
Hura crepitans, 35592.

Ilang-ilang. See *Canangium odoratum.*
Ipomoea sp., 35414.
  batatas, 35280, 35281.
Iris spuria, 35168.
  desertorum, 35169.
  × *monnieri*, 35170.

Jasmine. See *Jasminum* sp.
Jasminum sp., 35186.
Jequirity. See *Abrus praecatorius.*
Juglans mandshurica, 35303.
  regia 35463.
  sinensis, 35610 to 35613.
Jujube. See *Ziziphus jujuba.*
Juncoides sp., 35432.
Juniper. See *Juniperus davurica.*
Juniperus davurica, 35310.

Kalios. See *Streblus asper.*
Kandela. See *Kerstingiella geocarpa.*
Kerstingiella geocarpa, 35145, 35146.
Kodo. See *Paspalum scrobiculatum.*
Korean pine. See *Pinus koraiensis.*

Lacquer tree. See *Rhus verniciflua.*
Lallemantia iberica, 35594.
Lapageria rosea, 35235.
Larch. See *Larix* spp.
Larix kurilensis, 35171.
  leptolepis, 35295.
Lathyrus sativus, 35425.
  tingitanus, 35203.
Ligaa. See *Ziziphus trinervia.*
Lonicera sp., 35189, 35190.
  delavayi. See *Lonicera similis delavayi.*
  similis delavayi, 35187.
  thibetica, 35188.
Loquat. See *Eriobotrya japonica.*
Lotus sp., 35472.
  corniculatus, 35471.
Lovoa swynnertonii, 35459.
Lupine. See *Lupinus* spp.
Lupinus albus, 35477.
  angustifolius, 35476.
  luteus, 35478.
Lycopersicon esculentum, 35151 to 35154.

Maclura tricuspidata. See *Cudrania tricuspidata.*
Malus sp., 35191.
  cerasifera, 35155.
  sylvestris, 35636, 35638.
Mangifera sp., 35412.
  foetida, 35403.
  indica, 35404 to 35411.
  verticillata, 35482.
Mango. See *Mangifera* spp.
Maple. See *Acer* spp.
Medicago carstiensis, 35156.
  falcata, 35311, 35312.
  littoralis, 35593.
  sativa, 35401, 35420, 35421, 35427, 35428, 35435 to 35443.
  glutinosa, 35207.
Melicocca bijuga, 35212.
Melilotus alba, 35575.
Melocoton. See *Sicana odorifera.*
Melon, calabaza. See *Sicana odorifera.*
Mida acuminata, 35323.
Millet. See *Chaetochloa italica.*
  little. See *Panicum miliare.*
  pearl. See *Pennisetum glaucum.*
Miscanthus japonicus, 35227.
Mountain ash. See *Sorbus aucuparia.*
Mung bean. See *Phaseolus aureus.*
Musa ensete, 35236.
Muskmelon. See *Cucumis melo.*
Mustard. See *Brassica balearica.*
Myristica philippensis, 35450.

New Zealand flax. See *Phormium tenax.*
Nicotiana tabacum, 35642.
Niger. See *Guizotia abyssinica.*
Nightshade. See *Solanum nigrum.*
Nutmeg, wild. See *Myristica philippensis.*

Oak, evergreen. See *Pasania cornea.*
Oat. See *Avena sativa.*
Onobrychis viciaefolia. See *Onobrychis vulgaris.*
  vulgaris, 35313.
Opuntia ficus-indica, 35321.
Orange. See *Citrus* sp.
Oroxylon indicum, 35415, 35468.

Pai ts'ai. See *Brassica pekinensis.*
Palm. See *Coccothrinax garberi.*
  African oil. See *Elaeis guineensis.*
Panicum miliaceum, 35355 to 35367, 35570.
  miliare, 35334 to 35336.
  muticum, 35666.

Papaya. See *Carica papaya.*
  mountain. See *Carica candamarcensis.*
Parkia roxburghii. See *Parkia timoriana.*
  timoriana, 35469.
Pasania cornea, 35320.
Paspalum scrobiculatum, 35332.
Passiflora sp., 35214, 35215.
Passion fruit. See *Passiflora* sp.
Pea, Tangier. See *Lathyrus tingitanus.*
  tree, Siberian. See *Caragana* spp.
Peach. See *Amygdalus persica.*
  Chinese wild. See *Amygdalus davidiana.*
Pear. See *Pyrus* spp.
Pennisetum glaucum, 35333.
  typhoideum. See *Pennisetum glaucum.*
Pepper, black. See *Piper nigrum.*
  red. See *Capsicum annuum.*
Persea americana, 35282.
  carolinensis. See *Persea pubescens.*
  gratissima. See *Persea americana.*
  meyeniana, 35137, 35138.
  pubescens, 35231.
Persimmon. See *Diospyros kaki.*
Phaseolus angularis, 35216 to 35221, 35632.
  aureus, 35347, 35629 to 35631.
  coccineus, 35224.
  mungo, 35346.
  vulgaris, 35225, 35226, 35228.
Phoenix dactylifera, 35161, 35172, 35573, 35574.
Phormium tenax, 35470.
Pigeon pea. See *Cajan indicum.*
Pine. See *Pinus* spp.
  Korean. See *Pinus koraiensis.*
Pinkapinkahan. See *Oroxylon indicum.*
Pinus sp., 35192, 35614.
  cembra sibirica, 35289, 35290.
  densiflora, 35293.
  eldarica, 35208.
  koraiensis, 35291, 35292, 35615.
  thunbergii, 35294.
Piper nigrum, 35460.
Pithecolobium angulatum, 35451.
  lobatum, 35452.
Potato. See *Solanum* spp.
  sweet. See *Ipomoea batatas.*
Premna odorata, 35453.
  pubescens. See *Premna odorata.*
Prickly pear. See *Opuntia ficus-indica.*
Proso. See *Panicum miliaceum.*
Prunus sp., 35640.
  davidiana. See *Amygdalus davidiana.*
  fenzliana. See *Amygdalus fenzliana.*
  nana. See *Amygdalus nana.*
  persica. See *Amygdalus persica.*
Pyrus sp., 35193.
  aucuparia. See *Sorbus aucuparia.*
  cathayensis. See *Chaenomeles cathayensis.*
  chinensis, 35457, 35637.
  malus. See *Malus sylvestris.*
  sinensis. See *Pyrus chinensis.*
  ussuriensis, 35304.

Quercus cornea. See *Pasania cornea.*
Quinacastle. See *Enterolobium cyclocarpum.*
Quandong. See *Mida acuminata.*
Quince. See *Chaenomeles cathayensis.*

Ragi. See *Eleusine coracana.*
Raspberry. See *Rubus* spp.
Red pepper. See *Capsicum annuum.*
Rhus vernicifera. See *Rhus verniciflua.*
  verniciflua, 35302.
Ribes sp., 35195, 35308, 35309.
  himalayense urceolatum, 35194.
Ricinus communis, 35381 to 35399.
Rosa multibracteata, 35196.
  soulieana, 35200.
Rose. See *Rosa* spp.
  apple, Australian. See *Eugenia myrtifolia.*
Rowan tree. See *Sorbus aucuparia.*
Rubus biflorus quinqueflorus, 35197.
  pinnatus, 35580.

Sainfoin. See *Onobrychis vulgaris.*
Salix sp., 35262.
Sand-box tree. See *Hura crepitans.*
Sarsaparilla. See *Smilax officinalis.*
Sciadopitys verticillata, 35300.
Sesame. See *Sesamum orientale.*
Sesamum orientale, 35373 to 35380.
Setaria italica. See *Chaetochloa italica.*
Siberian pea tree. See *Caragana* spp.
Sicana odorifera, 35136.
Sideroxylon sp., 35454.
Smilax officinalis, 35417.
Soja max, 35600, 35622 to 35628.

- *Solanum* sp., 35504 to 35506, 35547, 35565.
  - *bridgesii*, 35548 to 35561.
  - *chlorocarpon*. See *Solanum nigrum*.
  - *guineense*. See *Solanum nigrum*.
  - *melongena*, 35635.
  - *miniatum*. See *Solanum nigrum*.
  - *nigrum*, 35157 to 35160, 35209.
  - *oleraceum*. See *Solanum nigrum*.
  - *tuberosum*, 35491 to 35503, 35507 to 35532, 35536 to 35546, 35562 to 35564, 33566 to 35569, 35595.
  - *villosum*. See *Solanum nigrum*.
- *Sorghum vulgare*. See *Holcus sorghum*.
- *Sorbus aucuparia*, 35305.
- Soursop. See *Annona muricata*.
- Soy bean. See *Soja max*.
- *Spiraea henryi*, 35198.
- Spruce. See *Abies* spp.
- *Streblus asper*, 35455.
- Sweet potato. See *Ipomoea batatas*.

- Tamarisk. See *Tamarix* sp.
- *Tamarix* sp., 35261.
- Tea oil. See *Thea sasanqua*.
- Teyer tree. See *Coccothrinax garberi*.
- *Thea sasanqua*, 35248.
- *Theobroma cacao*, 35144.
- *Thrinax garberi*. See *Coccothrinax garberi*.
- Tobacco. See *Nicotiana tabacum*.
- Tomato. See *Lycopersicon esculentum*.
- *Torresia* sp., 35434.
- Tree of heaven. See *Ailanthus cacodendron*.
- *Trichosanthes anguina*, 35579.
- *Trifolium agrarium*, 35268.
  - *alpestre*, 35276.
  - *arvense*, 35271.
- *Trifolium elegans*, 35275.
  - *incarnatum*, 35266, 35424.
  - *montanum*, 35279.
  - *pratense*, 35267, 35269, 35270, 35272 to 35274, 35277, 35278.
  - *suaveolens*, 35265, 35419.
- *Triticum durum*, 35314, 35480.

- *Ullucus tuberosus*, 35533 to 35535.
- Undetermined, 35233.
- Urd. See *Phaseolus mungo*.

- *Vangueria infausta*, 35576.
- Vetch. See *Vicia atropurpurea*.
- *Viburnum betulifolium*, 35199.
- *Vicia atropurpurea*, 35204, 35284.
  - *faba*, 35222.
- *Vigna catjang*. See *Vigna cylindrica*.
  - *cylindrica*, 35349, 35350.
  - *sinensis*, 35618 to 35620.
- *Vitis amurensis* × *riparia*, 35306.

- Walnut. See *Juglans* spp.
- Watermelon. See *Citrullus vulgaris*.
- Wheat, durum. See *Triticum durum*.
- Willow. See *Salix* sp.
- Wood-oil tree, Chinese. See *Aleurites fordii*.

- *Xanthosoma* spp., 35485 to 35490.

- Yautia. See *Xanthosoma* spp.
- Ylang-ylang. See *Canangium odoratum*.

- *Zea mays*, 35229, 35588, 35617.
- Zebra grass. See *Miscanthus japonicus*.
- *Zelkova acuminata*. See *Zelkova serrata*.
  - *serrata*, 35301.
- *Ziziphus exserta*. See *Ziziphus trinervia*.
  - *jujuba*, 35253 to 35257, 35260, 35287, 35601 to 35609.
  - *sativa*. See *Ziziphus jujuba*.
  - *trinervia*, 35416.

Issued December 23, 1915.

U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF PLANT INDUSTRY.

WILLIAM A. TAYLOR, *Chief of Bureau.*

INVENTORY
OF
SEEDS AND PLANTS IMPORTED
BY THE
OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM JULY 1 TO SEPTEMBER 30, 1913.

(No. 36; Nos. 35667 to 36258.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1915.

BUREAU OF PLANT INDUSTRY.

Chief of Bureau, William A. Taylor.
Assistant Chief of Bureau, Karl F. Kellerman.
Officer in Charge of Publications, J. E. Rockwell.
Chief Clerk, James E. Jones.

Foreign Seed and Plant Introduction.

SCIENTIFIC STAFF.

David Fairchild, *Agricultural Explorer in Charge.*

P. H. Dorsett, *Plant Introducer, in Charge of Plant Introduction Field Stations.*
Peter Bisset, *Plant Introducer, in Charge of Foreign Plant Distribution.*
Frank N. Meyer and Wilson Popenoe, *Agricultural Explorers.*
H. C. Skeels, S. C. Stuntz, and R. A. Young, *Botanical Assistants.*
Allen M. Groves, Nathan Menderson, and Glen P. Van Eseltine, *Assistants.*
Robert L. Beagles, *Superintendent, Plant Introduction Field Station, Chico, Cal.*
Edward Simmonds, *Superintendent, Plant Introduction Field Station, Miami, Fla.*
John M. Rankin, *Superintendent, Yarrow Plant Introduction Field Station, Rockville, Md.*
E. R. Johnston, *Assistant in Charge, Plant Introduction Field Station, Brooksville, Fla.*
Edward Goucher and H. Klopfer, *Plant Propagators.*
Collaborators: Aaron Aaronsohn, *Director, Jewish Agricultural Experimental Station, Haifa, Palestine;* Thomas W. Brown, *Gizeh, Cairo, Egypt;* H. M. Curran, *Bahia, Brazil;* Dr. Gustav Eisen, *California Academy of Sciences, San Francisco, Cal.;* E. C. Green, *Serviço do Algodao, Rio de Janeiro, Brazil;* A. C. Hartless, *Seharunpur Botanic Gardens, Seharunpur, India;* Barbour Lathrop, *Chicago, Ill.;* William S. Lyon, *Gardens of Nagtajan, Manila, P. I.;* Miss Eliza R. Scidmore, *Yokohama, Japan;* Charles Simpson, *Little River, Fla.;* Dr. L. Trabut, *Director, Service Botanique, Algiers, Algeria;* E. H. Wilson, *Arnold Arboretum, Jamaica Plain, Mass.*

CONTENTS.

	Page.
Introductory statement	5
Inventory	9
Botanical note and publication of a new name	69
Index of common and scientific names	71

ILLUSTRATIONS.

		Page.
PLATE I.	A collection of wild and cultivated potato and melluco tubers from South America. (S. P. I. Nos. 35703 to 35868)	16
II.	A grove of Chinese chestnut trees (*Castanea mollissima*) at San Tun Ying, China. (S. P. I. No. 35891)	16
III.	The trunk of an old Chinese chestnut tree (*Castanea mollissima*) near San Tun Ying, China. (S. P. I. No. 35891)	20
IV.	An elm-leaved flowering plum (*Prunus triloba*) at Peking, China. (S. P. I. No. 36112)	20
V.	A new Paraguayan fruit (*Eugenia* sp.) at Altadena, Cal. (S. P. I. No. 36167)	60
VI.	Beds of ginseng (S. P. I. No. 36175) at Songdo, Chosen (Korea)	60

INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM JULY 1 TO SEPTEMBER 30, 1913 (NO. 36; NOS. 35667 TO 36258).

INTRODUCTORY STATEMENT.

This inventory covers the summer months only, but anyone looking through it will get a very fair idea of the stream of new plants which the department is bringing into the country and, after propagating, is sending out to experimenters scattered from Alaska to southern Florida. The limitation of funds allotted for this work prevents the making of a thorough governmental investigation of more than a very few of these newly introduced plants, but private experimenters in increasing numbers are placing their facilities for testing plants at our disposal, and the aggregate observations made by this corps of volunteer experimenters furnish the proof in large measure of the adaptability of these various plants to American conditions of climate and to the economic conditions of American life.

Although it is often the case that some unheralded, obscure plant in this process of selection turns out to have great value, it may not be out of place, as has been the custom for a number of years past, to emphasize particular introductions which, on their face, so to speak, appear to be particularly promising.

There appear to be localities in America where a short-season corn which will ripen with comparatively little sunlight may be of distinct value, and Mr. Wight's introduction of a variety (No. 35998) from Castro, a cool, rainy region in Chile, may help solve this problem.

The success of several of the foreign cover crops previously introduced will create an interest in the East African legume, *Meibomia hirta* (No. 36060), and its trial is recommended in the orchards of Florida. The Australian Rhodes grass, *Chloris paraguaiensis* (No. 36255), which is pronounced by certain Australian experimenters distinctly more productive than the South African form, growing to 5 feet in height and yielding hay of a finer quality and twice as much, can not fail to be of interest to stockmen in the Gulf States, where the South African variety has already been so successful.

NOTE.—This bulletin is intended for distribution to the agricultural experiment stations and the more important private cooperators of the Department of Agriculture.

The growing interest in hardy so-called English walnuts will create a demand for the Changli walnut (No. 36082), found recently by Mr. Meyer near the Great Wall of China, which will probably prove hardier than any of the varieties from southern Europe; and his chestnut species, identified as *Castanea mollissima* (No. 35891), from San Tun Ying, even though a low-branching open-headed species of no value for timber, can not fail to attract attention as an orchard tree because of its greater resistance to the chestnut bark disease, which is destroying the American chestnut, and its excellent nuts, for which it is cultivated in China.

The pistache-nut tree has begun to be grown in California, and bearing specimens are already interesting the California horticulturists. The introduction of the Kaka tree of India, *Pistacia integerrima* (No. 36065), a close relative of it, for trial as a stock for commercial varieties of the pistache will be of interest to a widening circle of cultivators.

Throughout historic times the olive has been grown on its own roots. In California it fruits abundantly, but in Florida and Texas, although growing luxuriantly, it refuses to produce more than a few scattering fruits. The introduction of the South African wild olive, *Olea verrucosa* (No. 36059), on which the cultivated olive has already been successfully grafted, makes it desirable to try the olive on this wild stock in moist southern regions.

The introduction of a quantity of the nuts of the Nipa palm, *Nypa fruticans* (No. 36058), from the Philippines, should call attention to what appears to be a remarkable sugar and alcohol producing crop for tidal tropical swamp lands, where little that is profitable is now grown. The vast areas of this land and the many uses of this palm make it worthy of the serious attention of tropical agriculturists.

Whether the Nikau palm, *Areca sapida* (No. 35888), which in the forests of New Zealand is said to withstand the forest fires, will prove adapted to conditions in southern Florida and spread over the hammocks is a question worth determining.

The success of our previous introduction of the remarkable white-barked pine of China, *Pinus bungeana* (No. 35916), has led to its reintroduction. Although it may be 50 years before the trees will show their white-barked character, they are long-lived trees, growing to a great size, and a place should be found for them in our landscape gardening.

The Siberian larch, *Larix sibirica*, one of the most rapid growing of all the conifers, is proving to be adapted climatically to the Canadian Northwest, and American foresters are already experimenting with it. A strain from the southern Ural Mountains (No. 36163) will doubtless be of interest to them.

The Chinese cabbage, or *pai ts'ai*, *Brassica pekinensis*, has made a place for itself in American gardening, and there is a distinct impression that it is more easily digested than the ordinary cabbage. A quick-maturing variety for early-autumn use (No. 36114) and a large-headed variety (No. 36113) are recommended to those who are growing this new vegetable.

Of new fruits the following are worthy of special mention: Eleven varieties of mango (Nos. 36029 to 36039) from India, two of which came from the rainier region of Mozufferpur and may prove valuable for the rainy portions of Porto Rico; the Pahutan mango (No. 36052), of Manila, which, on account of its great vigor, may be useful as a stock; the Diamond mango (No. 36070), from the Island of Chiloane, off the coast of East Africa, the home of the Lathrop mango; the Chinese bush cherry, or *ying tau'r*, *Prunus tomentosa* (Nos. 36086 and 36111), which, in the opinion of Mr. Meyer, who discovered pale-fruited and white-fruited forms of it (Nos. 36109 and 36110), is a bush fruit for the home garden in the cold semiarid sections of the Northwest; the Monte Porcio Catone apricot (No. 35701), said by Dr. Gustav Eisen, who knows California fruits well, to be the handsomest apricot he had ever seen, and therefore of interest to Californians.

The collection of citrus fruits (Nos. 35690 to 35700) made by Mr. Woglum during his search for the white-fly parasites in India has in it some promising new varieties, including a round seedless lemon from Cawnpore, the Kaghzi lime, and the loose-skinned Nagpur tangerine. Popenoe's Bedana grape, a small seedless variety from Seharunpur (No. 36040), adds another seedless form to those already being cultivated in California. Tropical fruit growers will doubtless welcome Wester's introduction of the marang, *Artocarpus odoratissima* (No. 36256), a new relative of the breadfruit and the jak fruit, which is a native of the Sulu Archipelago and Mindanao and appears to be juicier, sweeter, and more aromatic than either of these widely grown tropical fruits. They will also want to test the galo fruit, *Anacolosa luzoniensis* (No. 35893), from the hilly interior of Cavite. Strawberry hybridizers may want to test the wild *Fragaria chiloensis* (No. 35953), from the Island of Chiloe, where Mr. Wight found it growing on the seashore.

The demand for early-flowering dooryard shrubs will make the elm-leaved plum of China, *Prunus triloba* (No. 36112), a welcome addition, since, according to Mr. Meyer, it produces blooms ranging in color from pale pink to dark violet-rose and is already a favorite shrub among the Chinese.

As in the previous inventory, the manuscript has been prepared by Miss May Riley, under the supervision of Mr. S. C. Stuntz, in general charge of the publications of the Office of Foreign Seed and Plant Introduction. Mr. H. C. Skeels has provided notes of geographical distribution and, together with Mr. Stuntz, is responsible for the orthography of the inventory, since, working under the direction of the Committee on Scientific Orthography of the Bureau, they settle so far as possible questions of nomenclature, following in general the classification of the most recent reputable monographers.

David Fairchild,
Agricultural Explorer in Charge.

Office of Foreign Seed and Plant Introduction.
Washington, D. C., August 17, 1915.

INVENTORY.

35667. Punica granatum L. **Pomegranate.**

From Mesa, Ariz. Presented by Mr. E. W. Hudson, Sacaton, Ariz., who procured the cuttings from Mr. G. S. Kelly, Mesa, Ariz. Received at the Plant Introduction Field Station, Chico, Cal.

"Cuttings from several large bushes, all of one variety, growing on the ranch of Mr. Kelly at Mesa, Ariz. Origin unknown; apparently identical with the variety sold by western nurseries under the name 'Sweet fruited'; fruit medium size, with a deep rose-colored skin and flesh; sweet, of excellent flavor, and soft seeded; represents the best type of pomegranate for eating out of hand." (*T. H. Kearney.*)

35668 to 35670. Carica papaya L. **Papaya.**

From Kongo da Lemba, Kongo. Presented by Mr. H. Meyr, acting director, Ministry of the Colonies, Brussels, Belgium. Received July 7, 1913.

Quoted notes by Mr. Meyr.

35668. "(No. 1.) *Lala.* Fruit very nearly spherical, not prominently ridged, exterior very smooth. Color of both exterior and pulp, orange yellow."

35669. "(No. 2) *Lala.* Fruit ovoid, not prominently ridged. Exterior very smooth. Color of both exterior and pulp, orange yellow."

Nos. 1 and 2 resemble each other in flavor.

35670. "(No. 3.) Fruits of large dimensions, more or less irregularly ovoid; large ridges very pronounced. Color of both exterior and pulp, orange yellow. The pulp is very fine and of a distinct flavor, quite different from the other two [S. P. I. Nos. 35668 and 35669]. The natives make no distinction among the varieties, except that this No. 3, on account of its large size, is called *lala na sasi* (elephant papaya)."

35671 and 35672.

From Puerto de Orotava, Teneriffe, Canary Islands. Presented by Dr. George V. Perez. Received July 3, 1913.

35671. Annona cherimola Mill. **Cherimoya.**

35672. Echium fastuosum Salisbury. **Pride of Madeira.**

"The so-called pride of Madeira; flowers are light blue." (*Perez.*)

"There can hardly be a more striking object than this plant in early March in full beauty of bright pale-blue blossoms. The bush measures up to 18 feet in circumference, and the flower heads of crowded cymes are 6 inches to 1 foot long. The filaments are white, fading into pink; the leaves pale glaucous green. The flowers are highly attractive to bees and butterflies, furnishing an abundant supply of nectar and dark-blue pollen. The plant is perennial in habit, rises 5 or 6 feet from the ground, assuming a graceful pyramidal form, generally perishing after a few years' growth, leaving seedlings in abundance." (*Gardeners' Chronicle, May 30, 1903.*)

35673 to 35676.

From San Jose, Costa Rica. Presented by Sr. Otón Jiménez L., chief, Department of Botany, Muséo Nacional. Received July 7, 1913.

35673. ACHRADELPHA MAMMOSA (L.) O. F. Cook. **Sapote.**
(*Lucuma mammosa* Gaertn. f.)

"From San Francisco de Guadalupe. A sapote 10 centimeters in diameter, with pulp of golden-red color, very sweet taste, and not very glutinous. It is very much esteemed and brings good prices in the market." (*Jiménez L.*)

35674. ACHRADELPHA VIRIDIS (Pittier) O. F. Cook. **Sapote.**

A tree related to the sapote, but producing fruit of superior quality. It was described originally as *Calocarpum viride* Pittier. A larger quantity of seed of this species was secured afterward from Guatemala by Mr. O. F. Cook, who refers to this tree as *Achradelpha viridis* (S. P. I. Nos. 38478 to 38481, 38566, and 40906). The reason for changing the name is stated by Mr. Cook as follows:

"The injerto is undoubtedly a close relative of the true sapote of Mexico and Central America, which is the type of the genus Achradelpha. The generic name Calocarpum used by Pierre and other recent writers for the sapote is not considered available on account of its previous application to other plants."

"From Guanacaste. The fruit reaches about 10 centimeters in diameter. The pulp is dark red and of fine flavor. This variety is rare and one of the most valuable." (*Jiménez L.*)

35675. PERSEA AMERICANA Miller. **Avocado.**
(*Persea gratissima* Gaertn. f.)

"From San Mateo. The fruit reaches 30 centimeters in length and 10 centimeters in width at its largest part. It is one of the largest varieties of Costa Rica. It is of delicious flavor and is called butter avocado (*Aguacate de mantequilla*)."

35676. PERSEA AMERICANA Miller. **Avocado.**
(*Persea gratissima* Gaertn. f.)

"From San Mateo. The fruit is ovoid, and about 10 to 12 centimeters in both diameters. Much esteemed."

35677 to 35684. STIZOLOBIUM spp.

Presented by Mr. D. Hooper, Office of Economic Botanist, Botanical Survey of India Department, Calcutta, through Mr. C. V. Piper, of the Bureau of Plant Industry. Received July 2, 1913.

Quoted notes by Mr. Hooper.

35677. STIZOLOBIUM sp.

"(Reg. No. 34979.) From Hajipur subdivision, Mozufferpur, Behar; locally called *Kabach*."

35678. STIZOLOBIUM CINEREUM Piper and Tracy.

"(Reg. No. 35055.) From Kessaria, Chumparun, Behar; locally called *Kabach*."

35679. STIZOLOBIUM sp.

"(Reg. No. 35085.) From Mozufferpur, Behar; locally known as *Kabach*. These shiny beadlike black seeds are probably *S. capitatum*."

35680. STIZOLOBIUM sp.

"(Reg. No. 35096.) From Cuttack, Orissa; locally called *Byle*. This also appears to resemble *S. capitatum*."

35677 to 35684—Continued.

35681. Stizolobium sp.

"(Reg. No. 35236.) From Falam, Chin Hills, Burma; locally known as *Ra* or *Aunglauk*."

35682. Stizolobium sp.

"(Reg. No. 35237.) Probably from Falam, Chin Hills, Burma; locally known as *Ewe-shewl*, *Bu-shule*, or *Yum-man*. These are large marbled seeds of gray, brown, and black, and come very close to the Darjeeling specimen."

35683. Stizolobium aterrimum Piper and Tracy.

"(Reg. No. 35238.) From Akyab, Burma; locally called *Pe-del-auet*."

35684. Stizolobium capitatum (Roxb.) Kuntze.

"(Reg. No. 35271.) From Ketah Durbar, Rajputana where it is known as a bean."

35685. Opuntia sp. **Prickly pear.**

From Augusta, Ga. Presented by the P. J. Berckmans Co.

"Hardy cactus from Argentina; 3-year seedlings." (*R. C. Berckmans.*)

Plants.

35686 and 35687. Solanum spp. **Potato.**

From Guaqui Mole, Bolivia. Presented by Dr. C. W. Foster, La Paz, Bolivia, at the request of Mr. W. F. Wight, of the Bureau of Plant Industry. Received July 7, 1913.

"Wild potatoes collected at Guaqui Mole." (*Foster.*)

35688. Lansium domesticum Jack. **Duku.**

From Buitenzorg, Java. Presented by the director, Department of Agriculture. Received July 11, 1913.

35689. Corypha elata Roxburgh. **Buri palm.**

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received July 14, 1913.

"Trunk straight, 60 to 70 feet high, 2 feet in diameter, spirally ridged; leaves lunate, 8 to 10 feet in diameter, segments 80 to 100, separated nearly to the middle, ensiform, obtuse or bifid; petioles 6 to 12 feet, with black margins and curved spines; spadix about one-fourth the length of the trunk, but narrow. Bengal and Burma." (*N. Taylor, in Bailey, Standard Cyclopedia of Horticulture.*)

35690 to 35700. Citrus spp.

From India. Received from Mr. R. S. Woglum, Bureau of Entomology, Department of Agriculture, who procured them from the government gardens at Nagpur and the botanical gardens at Seharunpur, India. Received at the Plant Introduction Field Station, Miami, Fla.

35690. Citrus sp. **Orange.**

"*Mussembi*. This word is, of course, a corruption of Mozambique. The introduction of this orange into India is unknown, but it is probably traceable to the early Portuguese settlers at Goa. It is commonly grown in the Dekkan, and is a handsome orange color, of the *Malta* type. As a sucking orange it is to my mind delicious. It comes into bearing very early. I am unable in all instances to personally testify to the quality of the varieties, as up to the present many of them have not fruited properly since I have been in charge here." (*A. C. Hartless*).

35690 to 35700—Continued.

"The *Mussembi* orange is shaped much like the *Valencia* and is about the same size. In flavor it is very sweet. From the botanical gardens, Seharunpur, India." (*Woglum.*)

35691. CITRUS NOBILIS DELICIOSA (Tenore) Swingle. **Madeiran orange.**

"*Nagpur.* From the government gardens, Nagpur, India. This is a well-known orange, and supposed to be one of the best, if not the best, grown in India. I, however, attribute its superlative quality to its coming into season at a time when such fruits are more appreciated rather than at the time when most other oranges are in season. As doubtless you are aware, oranges can fruit twice a year, at least in India, and at Nagpur the conditions are especially favorable for the second fruiting, or '*dumrez,*' as it is called in the vernacular. We grow the *Nagpur* variety, but we can say that it differs but very little from the ordinary *Suntra*, which, by the way, is a class in itself, and includes with us several varieties. It is a class or type, much in the way the *Malta* is." (*A. C. Hartless.*)

"The Nagpur orange is a large, loose-jacketed orange of the tangerine group." (*Woglum.*)

35692. CITRUS GRANDIS (L.) Osbeck. **Pomelo.**

"Red. From the botanical gardens, Seharunpur, India." (*Woglum.*)

35693. CITRUS GRANDIS (L.) Osbeck. **Pomelo.**

"Large, white fleshed. From the botanical gardens, Seharunpur, India." (*Woglum.*)

"These two varieties (S. P. I. Nos. 35692 and 35693) differ from one another only in the color of the flesh. They are of the large oblate varieties. They are not very much used by the Europeans in India, but more so by Indians. I follow Bonavia in thinking that the pomelo group is much more extensive than is generally supposed. I know two or three varieties that are called limes here, but which are undoubtedly pomelos." (*A. C. Hartless.*)

35694. CITRUS LIMONIA Osbeck. **Lemon.**

"Round, seedless. I regret that I can not at present give you any information concerning this, other than it came from Cawnpore. Presumably it is like some other varieties and distinguished as being seedless." (*A. C. Hartless.*)

35695. CITRUS AURANTIFOLIA (Christm.) Swingle. **Lime.**

"*Kaghzi.* From the botanical gardens, Seharunpur, India. *Kaghzi* in the vernacular means 'paper,' referring to the thin rind. This is the true lime of India. There are possibly various forms of it. It is one of the hardiest citrus fruits we have, particularly in withstanding drought and extreme heat. It is extensively grown around jails to supply the prisoners with lime juice, and is in fruit more or less all the year round." (*A. C. Hartless.*)

35696. CITRUS sp. **Lime.**

"*Atanni.* From the botanical gardens, Seharunpur, India." (*Woglum.*)

35697. CITRUS sp. **Lime.**

"*Atanni kala.* Is known in this garden as a lime, but is, I am convinced, a pomelo. The termination or last name *kala* should be *kalan*. *Kala* means 'black,' but *kalan* means 'large,' which, I think, is what is intended here. There is no doubt that the proper spelling of this word should be *Atanni*, which means eight annas, or half a rupee, implying possibly, as Bonavia says, that it is half the size of the pomelo. Its uses are similar to that of the pomelo." (*A. C. Hartless.*)

"From the botanical gardens, Seharunpur, India." (*Woglum.*)

35690 to 35700—Continued.

35698. Citrus sp. **Lime.**

"*Sylhet* or *Rangpur*. It is difficult to account for the double name attached to this variety. Sylhet is a well-known district in eastern India, whereas Rangpur is a district in the United Provinces. I think that originally plants were obtained from both places and subsequently found to be identical. I think this is the same as Reasoner Bros.' 'Sour Rangpur.' It is an excellent lime and is in fruit most of the year." (*A. C. Hartless.*)

"From the botanical gardens, Seharunpur, India." (*Woglum.*)

35699. Citrus medica L. **Sour citron.**

"*Jamberi*. From the government gardens, Nagpur, India." (*Woglum.*)

To be used for stocks.

35700. Citrus sinensis (L.) Osbeck. **Orange.**

"*Sikhim*. From the botanical gardens, Seharunpur, India." (*Woglum.*)

35701. Prunus armeniaca L. Apricot.

From Rome, Italy. Presented by Dr. Gustav Eisen, California Academy of Sciences, San Francisco, Cal. Received July 17, 1913.

"Cuttings of a new apricot from Monte Porcio Catone. It is the handsomest apricot I have yet seen, though not the very largest, and this year I have come across a variety of *Crisomelo* much larger. The *Monte Porcio Catone* is the most highly colored apricot I have seen, carmine red on one side, and the yellow is vivid, like that of a peach, and not dull, as is generally the case with apricots. It is of high flavor, ripening here at the end of June, and very sweet, the only defect being that the seed is slightly adherent to the flesh, but its other good qualities will make it valuable. As far as I can learn it is a seedling." (*Eisen.*)

35702. Haemanthus fascinator Linden.

From Brussels, Belgium. Presented by Mr. Edmund Leplace, acting director general, Ministry of the Colonies. Received July 17, 1913.

"Seeds of a beautiful species of the genus Haemanthus, from Belgian Kongo." (*Leplace.*)

"Plant with a bulbous base. Leaves 6 to 9, petiole 15 to 17 cm. long, semicylindrical, enlarged, sheathed at the base, with wings 2 to 3 mm. wide at the center; limb oval, subacute, rounded at the base, 21 to 22 cm. long and 10 cm. wide, pale on both sides, with the medial nerve violet colored on the back; lateral nerves to the number of 13 to 16 on each side of the medial nerve. Peduncle central with relation to the leaves, about 30 cm. long and 8 mm. wide; umbel attaining a diameter of 20 cm.; multiflorous; valves of the spathe linear oblong, 5 to 6 cm. long, reflexed.

"Flowers bright red, with slender pedicels, 30 to 40 mm. long; ovary green, 3 to 4 mm. in diameter; tube cylindrical, short, 7 to 10 mm. in length; lobes lanceolate linear, 22 to 25 mm. long, acute, furnished with a tuft of down at the summit, about 3 mm. wide. Filaments of the stamens 37 to 42 mm. long, with anthers about 2 mm. long. Style slender, much longer than the filaments.

"Since its appearance this species, gathered in the Kongo, has attracted the attention of the horticultural world. *Haemanthus fascinator* belongs in the same group as *H. germarianus*, *H. longipes*, *H. eetveldeanus*, and *H. laurentii*, and is closely related to *H. diadema* and *H. lindeni*, from which it differs by the much shorter tube of the perianth. It differs from *H. longipes* and *H. eetveldeanus* by the elongated filaments, from 37 to 42 mm. long, and from *H. laurentii* by its lobes, only 22 to 23 mm. long and 2 to 3 mm. wide. *H. fascinator*, *mirabilis*, and *diadema* have been described in the

'Meeting' of the Royal Horticultural Society of London, March 26, 1901, and the English horticultural papers, among others the 'Gardeners' Chronicle,' in its number of May 25, have drawn the attention of amateurs to them.

"Dr. Masters believes that in view of the general conditions in which these plants grow in the Kongo, that is to say, under the constant shade of the equatorial forest, in a light soil composed of sand and decayed vegetable matter, it will be easy to cultivate them in the temperate lands, and that they promise to have a great horticultural future." (*Journal Société Nationale d' Horticulture, ser. 4, vol. 3, 1902.*)

35703 to 35868.

Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received July 3, 1913.

Quoted notes by Mr. Wight.

35703 to 35723. Solanum tuberosum L. **Potato.**

35703. "(No. 400.) From Oruro, Bolivia."
35704. "(No. 401.) From La Paz, Bolivia."
35705. "(No. 402.) From La Paz, Bolivia."
35706. "(No. 403.) From Oruro, Bolivia."
35707. "(No. 405.) From Cuzco, Peru."
35708. "(No. 406.) From La Paz, Bolivia."
35709. "(No. 407.) From La Paz, Bolivia."
35710. "(No. 408.) From La Paz, Bolivia."
35711. "(No. 409.) From La Paz, Bolivia."
35712. "(No. 410.) From Cuzco, Peru."
35713. "(No. 411.) From Oruro, Bolivia."
35714. "(No. 412.) From Cuzco, Peru."
35715. "(No. 413.) From Cuzco, Peru."
35716. "(No. 414.) From Cuzco, Peru."
35717. "(No. 415.) From Oruro, Bolivia."
35718. "(No. 416.) From La Paz, Bolivia."
35719. "(No. 417.) From Oruro, Bolivia."
35720. "(No. 418.) From Cuzco, Peru."
35721. "(No. 419.) From Cuzco, Peru."
35722. "(No. 420.) From Cuzco, Peru."
35723. "(No. 421.) From Cuzco, Peru."

35724. Ullucus tuberosus Caldas. **Melluco.**

"(No. 422.) From Cuzco, Peru. Tubers about 1¾ inches long, oblong; skin yellow, splashed with red or pink."

35725 and 35726. Solanum tuberosum L. **Potato.**

35725. "(No. 423.) From La Paz, Bolivia."
35726. "(No. 426.) From Cuzco, Peru."

35727. Ullucus tuberosus Caldas. **Melluco.**

"(No. 427.) From Cuzco, Peru. Tubers about 1¼ inches in diameter, more or less spherical; skin light pink."

35728 to 35730. Solanum tuberosum L. **Potato.**

35728. "(No. 428.) From Oruro, Bolivia."
35729. "(No. 429.) From Cuzco, Peru."
35730. "(No. 430.) From La Paz, Bolivia."

35703 to 35868—Continued.

35731. ULLUCUS TUBEROSUS Caldas. **Melluco.**

"(No. 431.) From Cuzco, Peru. Tubers 3 to 14 inches long, cylindrical; skin light yellow."

35732 to 35739. SOLANUM TUBEROSUM L. **Potato.**

35732. "(No. 432.) From Cuzco, Peru."
35733. "(No. 433.) From La Paz, Bolivia."
35734. "(No. 434.) From Cuzco, Peru."
35735. "(No. 435.) From Cuzco, Peru."
35736. "(No. 436.) From Cuzco, Peru."
35737. "(No. 437.) From Cuzco, Peru."
35738. "(No. 438.) From La Paz, Bolivia."
35739. "(No. 439.) From Oruro, Bolivia."

35740. ULLUCUS TUBEROSUS Caldas. **Melluco.**

"(No. 440.) From Cuzco, Peru. Tubers about 1½ inches long, ovoid; skin light pink."

35741 to 35752. SOLANUM TUBEROSUM L. **Potato.**

35741. "(No. 441.) From Cuzco, Peru."
35742. "(No. 442.) From Cuzco, Peru."
35743. "(No. 443.) From Cuzco, Peru."
35744. "(No. 445.) From Cuzco, Peru."
35745. "(No. 446.) From La Paz, Bolivia."
35746. "(No. 447.) From Oruro, Bolivia."
35747. "(No. 448.) From La Paz, Bolivia."
35748. "(No. 449.) From Cuzco, Peru."
35749. "(No. 450.) From Cuzco, Peru."
35750. "(No. 451.) From Cuzco, Peru."
35751. "(No. 452.) From Cuzco, Peru."
35752. "(No. 453.) From Cuzco, Peru."

35753. ULLUCUS TUBEROSUS Caldas. **Melluco.**

"(No. 454.) From La Paz, Bolivia. Tubers 1¾ inches long, oblong; skin light yellow."

35754 to 35783. SOLANUM TUBEROSUM L. **Potato.**

35754. "(No. 456.) From Cuzco, Peru."
35755. "(No. 458.) From Cuzco, Peru."
35756. "(No. 459.) From La Paz, Bolivia."
35757. "(No. 461.) From Cuzco, Peru."
35758. "(No. 463.) From Oruro, Bolivia."
35759. "(No. 464.) From Oruro, Bolivia."
35760. "(No. 465.) From Oruro, Bolivia."
35761. "(No. 466.) From Cuzco, Peru."
35762. "(No. 467.) From Oruro, Bolivia."
35763. "(No. 468.) From La Paz, Bolivia."
35764. "(No. 469.) From Cuzco, Peru."
35765. "(No. 470.) From Cuzco, Peru."
35766. "(No. 471.) From Oruro, Bolivia."

35703 to 35868—Continued.

35767. "(No. 472.) From Oruro, Bolivia."
35768. "(No. 473.) From Oruro, Bolivia."
35769. "(No. 474.) From Cuzco, Peru."
35770. "(No. 475.) From Cuzco, Peru."
35771. "(No. 477.) From Cuzco, Peru."
35772. "(No. 478.) From Cuzco, Peru."
35773. "(No. 479.) From La Paz, Bolivia."
35774. "(No. 480.) From Cuzco, Peru."
35775. "(No. 481.) From Cuzco, Peru."
35776. "(No. 482.) From Oruro, Bolivia."
35777. "(No. 483.) From Oruro, Bolivia."
35778. "(No. 484.) From Cuzco, Peru."
35779. "(No. 485.) From Oruro, Bolivia."
35780. "(No. 486.) From Oruro, Bolivia."
35781. "(No. 487.) From Oruro, Bolivia."
35782. "(No. 488.) From Lima, Peru."
35783. "(No. 489.) From Tarma, Peru."

35784. ULLUCUS TUBEROSUS Caldas. **Melluco.**

"(No. 490.) From Lima, Peru. Tubers cylindrical, about 2¾ inches long; skin olive green, splashed with red."

35785 to 35793. SOLANUM TUBEROSUM L. **Potato.**

35785. "(No. 492.) From Lima, Peru."
35786. "(No. 493.) From Arequipa, Peru."
35787. "(No. 494.) From Arequipa, Peru."
35788. "(No. 495.) From Lima, Peru."
35789. "(No. 496.) From Arequipa, Peru."
35790. "(No. 497.) From Arequipa, Peru."
35791. "(No. 498.) From Arequipa, Peru."
35792. "(No. 500.) From Lima, Peru."
35793. "(No. 501.) From Arequipa, Peru."

35794. ULLUCUS TUBEROSUS Caldas. **Melluco.**

"(No. 502.) From Lima, Peru. Tubers nearly spherical, about 1 inch in diameter; skin olive green."

35795. SOLANUM TUBEROSUM L. **Potato.**

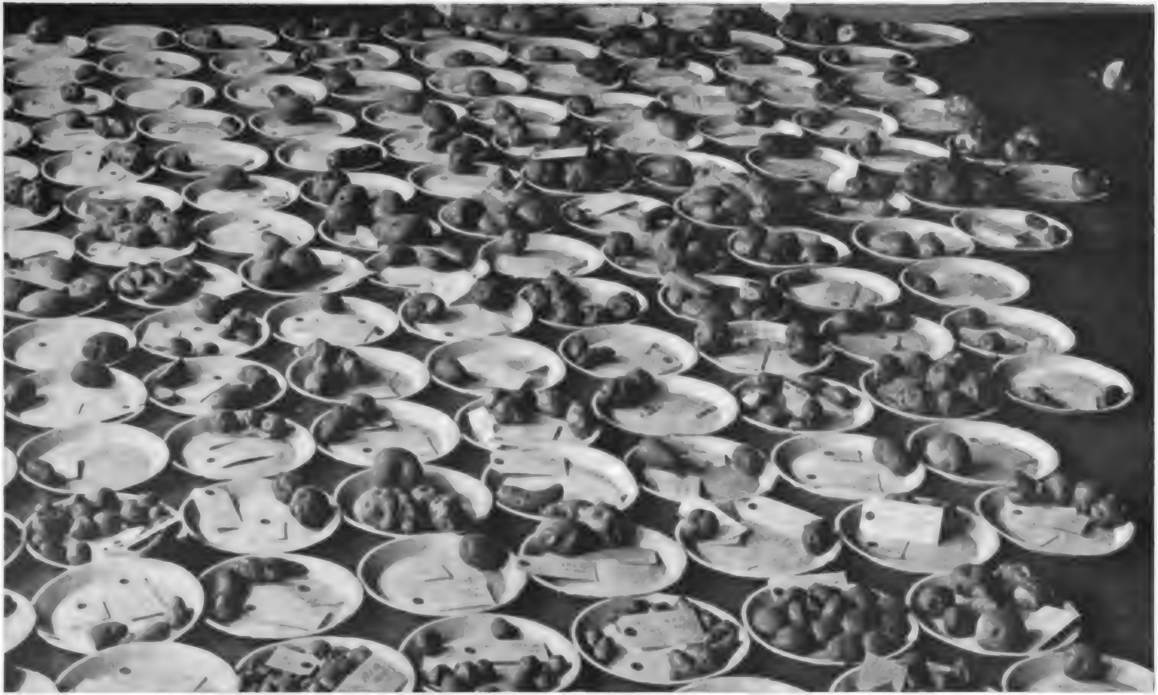
"(No. 503.) From Lima, Peru."

35796. ULLUCUS TUBEROSUS Caldas. **Melluco.**

"(No. 504.) From Lima, Peru. Tubers cylindrical, about 2½ inches long; skin bright red."

35797 to 35824. SOLANUM TUBEROSUM L. **Potato.**

35797. "(No. 505.) From Lima, Peru."
35798. "(No. 506.) From Arequipa, Peru."
35799. "(No. 507.) From Oroya, Peru."
35800. "(No. 509.) From Arequipa, Peru."
35801. "(No. 510.) From La Paz, Bolivia."
35802. "(No. 511.) From Tarma, Peru."



A COLLECTION OF WILD AND CULTIVATED POTATO AND MELLUCO TUBERS FROM SOUTH AMERICA. (S. P. I. NOS. 35703 TO 35868.)

Mr. W. F. Wight made a preliminary investigation of the potato situation in Chile and Peru, extending his explorations to the Chiloe Archipelago of southern Chile. This represents only a portion of the tubers secured. Among them is the remarkable yellow-fleshed potato and a number of wild forms, the economic possibilities of which have yet to be determined. (Photograph P11806FS.)

A GROVE OF CHINESE CHESTNUT TREES (CASTANEA MOLLISSIMA) AT SAN TUN YING, CHINA. (S. P. I. NO. 35891.)

These trees were only slightly attacked by the bark disease, according to Mr. Meyer, and it is hoped the species will show a high degree of resistance in America. The tree is too small to replace the American chestnut for any purpose except the production of nuts. (Photographed by Frank N. Meyer, May 28, 1913; P5846FS.)

35703 to 35868—Continued.

35803. "(No. 512.) From Lima, Peru."

35804. "(No. 513.) From Lima, Peru."

35805. "(No. 514.) From Lima, Peru."

35806. "(No. 515.) From Lima, Peru."

35807. "(No. 516.) From Lima, Peru."

35808. "(No. 517.) From Lima, Peru."

35809. "(No. 519.) From Arequipa, Peru."

35810. "(No. 520.) From Tarma, Peru."

35811. "(No. 521.) From Arequipa, Peru."

35812. "(No. 522.) From Arequipa, Peru."

35813. "(No. 523.) From Oroya, Peru."

35814. "(No. 524.) From Oroya, Peru."

35815. "(No. 525.) From Oroya, Peru."

35816. "(No. 527.) From La Paz, Bolivia."

35817. "(No. 528.) From Cuzco, Peru."

35818. "(No. 529.) From Oruro, Bolivia."

35819. "(No. 530.) From Cuzco, Peru."

35820. "(No. 531.) From Cuzco, Peru."

35821. "(No. 532.) From Cuzco, Peru."

35822. "(No. 533.) From Arequipa, Peru."

35823. "(No. 534.) From Cuzco, Peru."

35824. "(No. 535.) From Oruro, Bolivia."

35825 to 35828. ULLUCUS TUBEROSUS Caldas. **Melluco.**

35825. "(No. 536.) From Lima, Peru. Tubers nearly spherical, about 1½ inches in diameter; skin pink."

35826. "(No. 537.) From Lima, Peru. Tubers cylindrical, about 1¾ inches long; skin light yellow.

35827. "(No. 538.) From Lima, Peru. Tubers oblong, sometimes somewhat constricted in the center, about 1¾ inches long; skin olive green."

35828. "(No. 539.) From Cuzco, Peru. Tubers oblong oval, about 1¾ inches long; skin pink, with spots of dark red."

35829 to 35868. SOLANUM TUBEROSUM L. **Potato.**

35829. "(No. 540.) From Cuzco, Peru."

35830. "(No. 541.) From Lima, Peru."

35831. "(No. 542.) From Lima, Peru."

35832. "(No. 543.) From Cuzco, Peru."

35833. "(No. 544.) From La Paz, Bolivia."

35834. "(No. 545.) From La Paz, Bolivia."

35835. "(No. 546.) From La Paz, Bolivia."

35836. "(No. 547.) From Oruro, Bolivia."

35837. "(No. 548.) From Oruro, Bolivia."

35838. "(No. 549.) From Oruro, Bolivia."

35839. "(No. 550.) From Oruro, Bolivia."

35703 to 35868—Continued.

35840. "(No. 551.) From Oruro, Bolivia."
35841. "(No. 552.) From Oruro, Bolivia."
35842. "(No. 553.) From Arequipa, Peru."
35843. "(No. 554.) From Arequipa, Peru."
35844. "(No. 555.) From Lima, Peru."
35845. "(No. 556.) From Lima, Peru."
35846. "(No. 557.) From Lima, Peru."
35847. "(No. 558.) From Lima, Peru."
35848. "(No. 559.) From Cuzco, Peru."
35849. "(No. 560.) From Cuzco, Peru."
35850. "(No. 561.) From Cuzco, Peru."
35851. "(No. 562.) From Cuzco, Peru."
35852. "(No. 563.) From Oruro, Bolivia."
35853. "(No. 564.) From Oruro, Bolivia."
35854. "(No. 565.) From Oruro, Bolivia."
35855. "(No. 566.) From Lima, Peru."
35856. "(No. 567.) From Lima, Peru."
35857. "(No. 568.) From Lima, Peru."
35858. "(No. 569.) From Lima, Peru."
35859. "(No. 570.) From Arequipa, Peru."
35860. "(No. 571.) From Arequipa, Peru."
35861. "(No. 572.) From Arequipa, Peru."
35862. "(No. 573.) From Arequipa, Peru."
35863. "(No. 574.) From Arequipa, Peru."
35864. "(No. 579.) From Cuzco, Peru."
35865. "(No. 580.) From Cuzco, Peru."
35866. "(No. 581.) From Lima, Peru."
35867. "(No. 582.) From Lima, Peru."
35868. "(No. 583.) From Lima, Peru."

For an illustration of a part of this collection of potato and melluco tubers, see Plate I.

35869 to 35883.

Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received July 3, 1913.

Quoted notes by Mr. Wight.

35869 to 35874. OXALIS TUBEROSA Molina. **Oca.**

35869. "(No. 424.) From Cuzco, Peru."

Distribution.—An herbaceous perennial bearing potato like tubers, found in Bolivia, Peru, and Chile.

35870. "(No. 425.) From Oruro, Bolivia."
35871. "(No. 444.) From Cuzco, Peru."
35872. "(No. 455.) From Oruro, Bolivia."
35873. "(No. 457.) From Cuzco, Peru."
35874. "(No. 460.) From La Paz, Bolivia."

35869 to 35883—Continued.

35875. PERSEA AMERICANA Miller. **Avocado.**
(*Persea gratissima* Gaertn. f.)

"(No. 462.) From Cuzco, Peru."

35876. OXALIS TUBEROSA Molina. **Oca.**

"(No. 476.) From Oruro, Bolivia."

35877. PERSEA AMERICANA Miller. **Avocado.**
(*Persea gratissima* Gaertn. f.)

"(No. 518.) From Lima, Peru."

35878 and 35879. IPOMOEA BATATAS (L.) Poir. **Sweet potato.**

35878. "(No. 508.) Round fruit from Lima, Peru."

35879. "(No. 526.) Red-skinned fruit from Lima, Peru."

35880 to 35883. OXALIS TUBEROSA Molina. **Oca.**

35880. "(No. 575.) From Oruro, Bolivia."

35881. "(No. 576.) From Oruro, Bolivia."

35882. "(No. 577.) From Oruro, Bolivia."

35883. "(No. 578.) From Cuzco, Peru."

35884. SPONDIAS CYTHEREA Sonnerat. **We fruit.**
(*Spondias dulcis* Forster.)

From Buitenzorg, Java. Presented by the director, Department of Agriculture Received July 17, 1913.

35885. LANSIUM DOMESTICUM Jack. **Duku.**

From Buitenzorg, Java. Presented by the director, Department of Agriculture. Received July 17, 1913.

35886 and 35887.

From Cambridge, England. Presented by Mr. R. Irwin Lynch, curator, Cambridge Botanic Garden. Received July 15, 1913.

35886. CAJUPUTI HYPERICIFOLIA (Salisb.) Skeels. **Hillock tree.**
(*Melaleuca hypericifolia* Smith.)

35887. HELIOPHILA SCANDENS Harvey.

"The genus Heliophila belongs to South Africa. *H. scandens* is a perennial climber with white flowers, the only climbing species of the genus, and, with the exception of the Peruvian Cremolobus, the only climbing member of the natural order of Cruciferæ. This makes it extremely interesting from the botanical point of view, but it is also of interest horticulturally as a white-flowered climber flowering freely in the depth of winter. From this point of view there is nothing to compete with it, and for lighting up a conservatory at this time of the year it is certainly of value. It is slender in habit, sparingly branched; the leaves are 1½ or 2 inches long, elliptic or oblong lanceolate, acuminate, and pale green; the flowers are in racemes, pure white, and borne in considerable numbers. They do not appear to be fragrant, as has been stated. The plant was introduced to Kew some years ago from the Botanical Gardens of Durban, in which locality, as well as Manda, in Natal, it inhabits shady places among shrubs. In a corridor at the Botanic Garden, Cambridge, it flourishes and flowers every year. The culture does not appear difficult, and the plant strikes readily from cuttings." (*Gardeners' Chronicle, January 20, 1912.*)

35888. Areca sapida Solander. **Nikau palm.**

(*Rhopalostylis sapida* Wendl. and Drude.)

From Kohu Kohu, Hokianga, New Zealand. Presented by Mr. G. J. Clapham, Public Works Department, Wellington. Received July 18, 1913.

"Seeds of the nikau palm, which is quite hardy in this country." (*Clapham.*)

"A tree sometimes 30 feet in height. Stem ringed, green. Leaves 14 feet in length. Spathes two or three, 12 inches long. Flowering axis white; flowers white. Drupe one-half inch long. Both islands, as far south as Akaroa on the east coast and Dusky Bay on the west.

"This elegant and graceful palm is found usually in thick bush. Any specimen standing alone will have its leaves bruised or broken. The Maoris used the nikau leaves in the construction of their whares, or native huts. A framework was made of manuka sticks, and the roof and walls composed of palm leaves, which formed a covering as water-tight as if built of iron. These leaves keep out the wet in a marvelous manner, even when the thatching is so open that one can see the clouds and stars through the interstices. Every separate leaf division is a little channel, which conducts the rain drops to the ground outside. Nikau whares are extremely pretty and picturesque, but are now rarely seen, owing to the unfortunate cheapness of corrugated iron. Bushmen, however, still make them occasionally for temporary residences.

"The top of the stem is fleshy and juicy, and is sometimes eaten. The nikau palm will stand fire almost as well as the cabbage tree. After a big bush fire most of the trees are killed except the nikau, the cabbage trees, and the fern trees.

"The flowers are sessile upon a thick, fleshy axis, the whole inflorescence being inclosed when young in a large spathe. The fruit is of a vivid red when ripe, appearing like a huge bunch of coral. The berries are about the size of a large pea and are extremely hard. They have been used by settlers for bird shooting when ammunition was scarce. Though so hard, however, they are much relished by the kakas or wild parrots. These birds, unable to find foothold upon the smooth stem of the palm, hang upside down, with one claw fixed on the base of the leaf, and thus enjoy their meal.

"The leaf strips are much used by the Maoris for weaving into baskets and kits of every description.

"The bark is ringed with cicatrices formed by the falling off of the dead leaves. The base of a fallen leaf, with the fanlike part torn off, makes an excellent basket for carrying flowers." (*Laing and Blackwell, Plants of New Zealand.*)

35889. Ixerba brexioides Cunningham. **Tawari.**

From Wellington, New Zealand. Presented by Mr. E Clifton, director, Fields and Experimental Farms Division, Department of Agriculture. Received July 17, 1913.

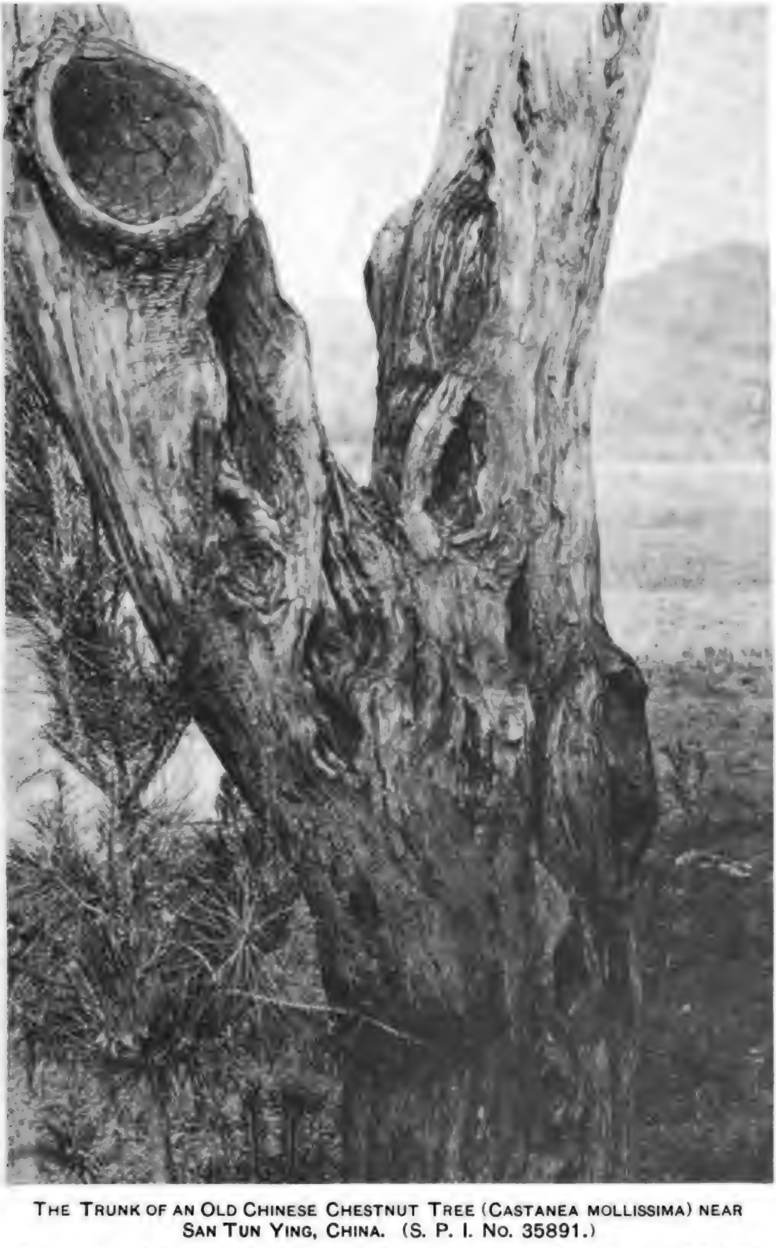
"A beautiful evergreen tree, sometimes 70 feet in height, with thick, leathery leaves and flat panicles of white flowers. Considered by Kirk to be the most beautiful tree in the New Zealand flora." (*Laing and Blackwell, Plants of New Zealand.*)

Distribution.—A small tree having a hard, dense wood, found in the forests on the hills in the North Island of New Zealand up to an elevation of 3,000 feet.

35890. Raphanus sativus L. **Egyptian black radish.**

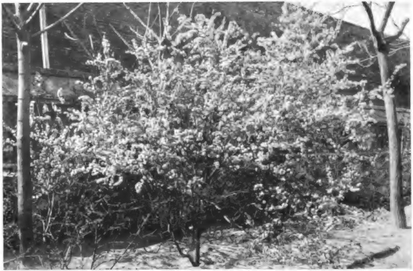
From Tampa, Fla. Received from Mr. Peter Bisset, of the Bureau of Plant Industry, who procured the seed from Dr. W. C. Richardson, Tampa, Fla. Received July 16, 1913.

"A large variety, said to be superior in quality to the well-known Japanese Sakurajima radish. Original seed collected in Egypt by Dr. W. C. Richardson. The plants from which this seed was raised were grown at Dr. Richardson's place in Tampa." (*Bisset.*)



THE TRUNK OF AN OLD CHINESE CHESTNUT TREE (CASTANEA MOLLISSIMA) NEAR SAN TUN YING, CHINA. (S. P. I. No. 35891.)

The partly healed scars of the wounds which were made by the bark disease (*Endothia parasitica*) probably 50 years ago indicate, according to Mr. Meyer, that this bark disease is not a new introduction into this part of China. (Photographed by Frank N. Meyer, June 3, 1913; P13008FS.)



AN ELM-LEAVED FLOWERING PLUM (PRUNUS TRILOBA) AT PEKING, CHINA. (S. P. I. NO. 36112.)

An April-flowering dooryard shrub which is a great favorite with the Chinese, forms of which have proved hardy in New York State. Its flowers are delicate rosy pink, suited to semiarid regions and for forcing purposes. (Photographed by Frank N. Meyer, April 17, 1913; P5864FS.)

35891. CASTANEA MOLLISSIMA Blume. **Chestnut.**

From San Tun Ying, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received July 21, 1913.

"(No. 1867a. San Tun Ying, China. May 30, 1913.) *Lee tze.* A good quality of seeds of a Chinese chestnut coming from the best chestnut district of North China. This North China chestnut has no value as a timber tree, being of a low-branching open-headed growth, while the trees do not grow tall, specimens over 40 feet in height being rare. It seems, however, much more resistant to the bark fungus disease than the American chestnut, and it might be utilized in certain hybridization experiments in trying to combine the good qualities of both the American and the Chinese parents into one tree. This chestnut loves a well-drained, decomposed granite soil, preferably at the foot of hills or of mountains; it also seems quite averse to strong winds and therefore thrives best in well-sheltered valleys. In its native localities it is but little cultivated, the peasants being contented to plant a few trees here and there along the bases of hills and on sloping fields, and the trees in general look much thriftier when close to rocks and bowlders than when seen on fairly level fields. From the nature of the tree and the climate where it grows one might conclude that sheltered valleys in the foothill sections of the Rocky Mountain region will probably suit this chestnut better than any other section in the United States, and some serious attempts should be made to establish it in these regions as a hardy nut-bearing tree. The Chinese roast these nuts in wintertime in large open iron pans in a mixture of sand with some coarse sugar or molasses in it. This treatment gives the chestnuts a glossy, appetizing appearance." (*Meyer.*)

For illustrations of this chestnut tree as found growing in China, see Plates II and III.

35892. CASTILLA NICOYENSIS O. F. Cook.

Central American rubber tree.

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, Department of Agriculture. Received July 19, 1913.

"A medium-sized tree, 10 to 20 meters high. Limbs divaricate, ascending, or horizontal. Floriferous twigs covered with a dense coating of rather long, brownish hairs, longitudinally striate when dry and filled with a thick, white pith. Leaves of medium size, deciduous. Petioles 1 to 2 cm. long, thick and densely hairy. Leaf blades 20 to 46 cm. long, 10 to 20 cm. broad, more or less cordate-emarginate at base, acuminate at tip, covered on the upper surface with sparse hair, this thicker on the midrib and primary veins, paler and hairy, especially on the veins, beneath. Nervation regular, prominent beneath. Margin distinctly dentate-sinuate, with tufts of hair on the teeth. The young leaves are dark green and sparsely hairy above, densely hairy tomentose beneath; the indentation of the margin is scarcely noticeable, and the base is often only rounded or scarcely emarginate. So far *Castilla nicoyensis* is reported from the peninsula of Nicoya only, but the probability is that it will be found all along the coast of the Pacific, from Nicaragua to Panama. It is a good rubber producer, the milk being particularly abundant toward the end of the dry season, and to this fact is due its almost complete extermination in the western forests of Costa Rica." (*Pittier, Treatment of the genus Castilla, Contr. U. S. Nat. Herb., vol. 13, pp. 275–277, 1910.*)

35893. ANACOLOSA LUZONIENSIS Merrill. **Galo.**

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received July 19, 1913.

"Seeds of a newly discovered fruit. The seed contains a very high grade starchy kernel, which may be eaten raw or roasted, and which is at certain seasons a very important article of diet among the Filipinos. When thoroughly ripe the pulp surrounding the shell is also edible and is a very delicious thing. Galo fruit occurs only in the hilly interior of Cavite Province." (*Barrett.*)

35894. ABELMOSCHUS MINDANAENSIS Warb.

From Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Division of Horticulture, Lamao Experiment Station. Received July 21, 1913.

35895. TECOMA JASMINOIDES Lindl. **Bower of beauty.**

From Tolga, Queensland, Australia. Presented by Mr. J. A. Hamilton. Received July 17, 1913.

"Seeds of a wild tecoma vine, very ornamental and sweet scented, but it grows only in our drier districts in granite formations." (*Hamilton.*)

Distribution.—A woody climber with panicles of white flowers having a red throat, found in Queensland and New South Wales.

35896. CAESALPINIA CORIARIA (Jacq.) Willd. **Divi-divi.**

From Contreras, Federal District of Mexico, Mexico. Presented by Mr. William Brockway, superintendent, Hotel Imperial Gardens. Received July 21, 1913.

"*Cascalote.* This is a small tree, 20 to 30 feet high, native of several of the West Indian Islands, Mexico, Venezuela, and north Brazil. The primary divisions of its leaves vary from 9 to 15, each bearing from 16 to 24 narrow, oblong, blunt leaflets marked with black dots on the under surface. It has branched racemes of white flowers, which produce curiously flattened pods about 2 inches long by three-fourths broad, and curved so as to bear some resemblance to the letter S. The large percentage of tannin in these pods renders them exceedingly valuable for tanning purposes; they are known in commerce under the names of Divi-divi, Libi-divi, or Libi-dibi, and chiefly imported from Maracaibo, Paraiba, and the Dominican Republic." (*A. Smith, in Lindley's Treasury of Botany.*)

35897. SESAMUM ORIENTALE L. **Sesame.**

(*Sesamum indicum* L.)

From Contreras, Federal District of Mexico, Mexico. Presented by Mr. William Brockway, superintendent, Hotel Imperial Gardens. Received July 21, 1913.

"Local name *Ajoujili.*" (*Brockway.*)

35898. SWARTZIA LANGSDORFFII Raddi.

From Rio de Janeiro, Brazil. Presented by Mr. E. C. Green. Received July 24, 1913.

"One of Brazil's local timber trees, native of this State (Rio de Janeiro). Tree 16 inches in diameter, 75 feet high. Local name *Pacoya macacos.* Endures a little frost on the higher lands. Likes granite and clayey loam soils." (*Green.*)

35899. SOLANUM sp. **Bitter potato.**

From Guaqui, Bolivia. Presented by Dr. C. W. Foster, through Mr. W. F. Wight, of the Bureau of Plant Industry. Received August 22, 1913.

"This Solanum is the *papa amarga*, or bitter potato, which the natives of some parts of both Peru and Bolivia offer in the market in a frozen state. It is apparently rarely, if ever, placed on sale in the natural or ordinary condition." (*Wight.*)

35900. GLADIOLUS sp. **Wild gladiolus.**

From Pretoria, Union of South Africa. Presented by Fred G. Nicholson, secretary, Transvaal Agricultural Union. Received July 24, 1913.

"Bulbs of the wild gladioli common in the Transvaal." (*Nicholson.*)

35901. STIZOLOBIUM STANS (Welw.) Kuntze.

(*Mucuna stans* Welw.)

From Pungo Ndongo, Angola. Presented by Mr. J. Gossweiler, Loanda, Angola, at the request of Dr. Otto Stapf, Royal Botanic Gardens, Kew, England. Received July 29, 1913.

Distribution.—A much-branched erect shrub, 5 to 6 feet high, found in the highlands of Angola.

35903. MANGIFERA INDICA L. **Mango.**

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received August 4, 1913.

"*Carabao*. Said to come true from seed."

See S. P. I. Nos. 24927 and 25659 for previous introductions.

35904. COUMAROUNA ODORATA Aublet. **Tonka bean.**

(*Dipteryx odorata* Willd.)

From the Solorzano Cacao Estate at Borburata, near Puerto Cabello, Venezuela. Received through Mr. H. Pittier, of the Bureau of Plant Industry. Received July 29, 1913.

"This tree was introduced less than 20 years ago as a tentative shade for cacao. When the first lot came into bearing it was found that they were far more productive as a crop producer than even cacao itself (I was told that last year's crop sold at $500 a hundredweight, or $5 a pound), so the plantation has been extended along the foot of the hills all around the Solorzano estate. As a shade tree the species was not successful; it does not rise high enough to allow good ventilation, and its foliage is too dense. The leaves are smooth and composed generally of four petiolulate, alternate ovate leaflets, borne on a broadly winged petiole. The flowers are purplish pink and grouped together in short, rounded, terminal racemes. There is seldom more than one fruit to each raceme, an egg-shaped pod, with a smooth, resisting, yellowish skin and a fleshy-spongy mesocarp, the flavor of which is rather agreeable to smell and taste. Each pod contains one of the black elongated seeds known as the tonka bean, which contains the alkaloid known as coumarin, extensively used in perfumery. The Venezuelan tonka bean is apparently what is commercially known as the English tonka bean. Its native country is in the little-known tract embracing the headwaters of the Orinoco and the northern reaches of the Amazon River. The Venezuelan annual crop is exported through Ciudad Bolivar, after having gone through a process of curing, which consists of soaking the beans in rum for about 12 hours and drying them again by exposure to the sun. They then become covered with a thin, white, minutely crystalline coating and so acquire their characteristic perfume." (*Pittier.*)

35905. MYRISTICA FRAGRANS Houttuyn. **Nutmeg.**

From the Solorzano Cacao Estate at Borburata, near Puerto Cabello, Venezuela. Received through Mr. H. Pittier, of the Bureau of Plant Industry, July 29, 1913.

"A medium-sized tree, 30 to 50 feet high, native of the Molukkas. The nutmeg of shops is the hard brown oval kernel of the fruit. Immediately surrounding it is the scarlet aril, or mace, in the form of a net, next to which is the thick, fleshy, juicy husk. The pale-amber fruit much resembles a peach or an apricot in form and appearance. When ripe, the husk splits and discloses the nut covered with the mace. The nuts drop to the ground, when they are collected and separated from the mace; both are then dried separately in the sun or in heated sheds. The nuts are graded for export; 70 to 120 or more go to the pound, these fetching at present (1910) in London about 8 pence to 1 shilling 4 pence, and 4½ pence to 10½ pence per pound, respectively, the largest size commanding the highest price. The tree thrives best in deep, loamy, and well-drained soil, in a hot and moist climate, and up to 1,500 feet elevation. Being diœcious, that is, the male and female flowers borne on separate trees, it is impossible to tell to which sex a tree belongs until it flowers. The proportion of 1 male to 10 or 12 female trees (or 10 males to an acre) should be enough for insuring the fertilization of the flowers of the latter. The trees become productive at the age of 7 or 8 years, and increase in yield till they reach about 30 years, when the crop may be 3,000 to 5,000 or more nuts per tree. They produce two crops a year, and continue to be productive for very many years. Trees about 70 years old in Peradeniya Gardens bear very heavy crops annually and appear to be now in their prime. Propagation is usually by seed, which take about three months to germinate. Sow in pots or boxes under cover, or in a well-prepared bed in a shady corner; cover with an inch of fine soil, and water daily in dry weather; artificial shade is beneficial until the seeds have germinated. When the seedlings are old enough to handle, transfer them to baskets or bamboo pots and plant out in permanent places when 8 or 10 inches high, at distances of about 30 feet apart. Owing to the uncertainty of the proportion of male to female plants when raised from seed, propagation by budding or inarching should as far as possible be resorted to." (*Macmillan, Handbook of Tropical Gardening and Planting.*)

35906. LANSIUM DOMESTICUM Jack. Duku.

From Buitenzorg, Java. Presented by the director, Department of Agriculture. Received July 31, 1913.

For previous introduction, see S. P. I. No. 35885.

35907 and 35908. CEIBA PENTANDRA (L.) Gaertner. Kapok.

From Nairobi, British East Africa. Presented by Mr. Ralph M. Odell, commercial agent, Department of Commerce and Labor, who secured them from Mr. A C. MacDonald, Director of Agriculture. Received August 1, 1913.

"Pods of the so-called kapok cotton tree, which grows wild out here. The fiber is very soft and silky, but the staple is very short and I am in doubt as to whether it could be spun into yarn without a great deal of difficulty or without special machinery." (*Odell.*)

35909. MAMMEA AMERICANA L. Mammee apple.

From Puerto Plata, Dominican Republic. Presented by Mr. Charles M. Hathaway, jr., American consul. Received August 4, 1913.

"Seeds and fruits of the mammee picked from a tree on the land of Eugenie Deschamps, on the edge of Puerto Plata. The leaves are dark olive green and shiny. The fruit is hard, solid, and heavy. When ripe it is of a yellowish brown color and has on the surface grayish specks like those on a potato skin. The rind is thick and leathery and may be readily stripped off after being quartered like the rind of an orange. It has the smell of an apricot. The larger specimens are from 16 to 18 inches in circumference and contain three stones; smaller ones contain one or two stones. The meat, which is of the color and smell of an apricot, is solid and adheres to the stones like that of a green peach. The fruit becomes soft only when decay sets it, as it does without showing any sign from the outside except softness to the touch. It should be eaten when still hard, but a little yielding to pressure. After the rind is stripped off, the fibrous layer that covers the meat should be scraped away. All the rest may be eaten. I have been told that the meat is improved by soaking a little while in salt water before eating. It is made into two sorts of jam, or dulce, as it is called here." (*Hathaway.*)

35910. Cassia beareana Holmes.

From Inhamban, Portuguese East Africa. Presented by Rev. Pliny W. Keys, superintendent, Limpopo District Methodist Episcopal Mission. Received August 5, 1913.

See S. P. I. No. 34367 for previous introduction.

35911. Phoenix dactylifera L. Date.

From Algiers, Algeria. Purchased from Mr. Yakia Ben Kassem. Received at Indio, Cal., by Mr. Bruce Drummond, August 4, 1913.

"*Tazizoot.* A soft date from the M'Zab region of the Algerian Sahara. The fruit ripens rather early. It is of excellent flavor, resembling that of the Tedalla variety, but is mealier and drier." (*W. T. Swingle.*)

35912 to 35915. Pisum sativum L. Pea.

From Budapest, Hungary. Presented by Mr. F. E. Mallett, American vice consul general. Received July 14, 1913.

Quoted notes by Mr. Mallett.

35912. "(No. 1.) Green."

35913. "(No. 2.) Orange."

35914. "(No. 3.) Cream."

35915. "(No. 4.) Light green."

"The above varieties are used as split peas."

35916 and 35917.

From Seoul, Chosen (Korea). Presented by Rev. H. Loomis, American Bible Society, Yokohama, Japan, who secured them from Mr. O. Saito, of the Agricultural, Commercial, and Industrial Department of the Government General. Received August 5, 1913.

35916. Pinus bungeana Zucc. Pine.

"A tree sometimes forming a rounded, bushy head, but frequently branching near the ground and forming several stems, which grow erect to a height occasionally of 80 to 100 feet. The bark is smooth and peels off the trunk like that of the plane; in young specimens it is brown, but in old ones becomes quite white and gives to this pine its most remarkable character. Young shoots perfectly smooth, shining, greyish green. Leaves in threes, persisting four or five years, about 3 inches long, two edged, stiff, sharply pointed, bright green, very minutely toothed, marked all round with faint stomatic lines; leaf sheath one-half to three-fourths inch long, soon falling. Cones 2 to 2½ inches long, 1¼ to 1½ inches wide, shortly stalked, the scales terminated by decurved, triangular spines; seeds one-third inch long, without wings.

"Native of China, first seen by Dr. Bunge in 1831 in the environs of Pekin, where it has been largely planted for the sake of its remarkable white trunk; introduced by Fortune in 1848. It has lately been seen in quantity by Wilson in central China. It is distinct from all other 3-leaved pines, except *P. gerardiana*, in the deciduous leaf sheaths. It succeeds very well at Kew, where there are trees approaching 30 feet in height, not yet, however, showing the white bark. This is said not to appear, even in China, until the trees are 50 years old." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, pp. 175–176.*)

35917. Castanea sp. Chestnut.

"These chestnuts are of a variety that is free from any injury by insects, is very sweet, has a loose husk to the kernel, and seems to me to be of great importance because of its healthfulness." (*Loomis.*)

35918 to 35975.

Collected by Mr. W. F. Wight, of the Bureau of Plant Industry.

Quoted notes by Mr. Wight, except as indicated.

35918. Alstroemeria sp.

From Chile. Received June 10, 1913. "(No. 107.) An herbaceous plant 2½ to 3 feet high with umbels of large, yellowish, very handsome flowers. In the forests between Petrufquen and Villarica."

35919. Alstroemeria sp.

From Talcahuano, Chile. Received May 7, 1913. "(No. 58.) A very ornamental herbaceous plant with pinkish flowers. These seeds were gathered from rather small plants in very light soil. It should do much better under good conditions."

35920. Apium sp. **Wild celery.**

From Quilan, Chile. Received June 10, 1913. "(No. 191.) A wild celery from south of Quilan. This has more or less the same taste as *Apium graveolens* and can be utilized in the same way. This should prove a valuable plant. I found it only near the sea."

35921 and 35922. Araucaria araucana (Molina) Koch. **Pehuen.**

35921. From Concepcion, Chile. Received June 10, 1913. "(No. 122.) Piñon nuts sold in the market at Concepcion. The natives bring them in from the mountains."

35922. From Temuco, Chile. Received June 10, 1913. "(No. 167.) Piñon nut from the mountains east of Temuco. Very common in many localities."

35923 and 35924. Berberis spp. **Barberry.**

From San Martin, Argentina. Received June 6, 1913.

35923. Berberis empetrifolia Persoon.

"(No. 139. March 1, 1913.) This has narrow needlelike leaves and is a low-growing shrub, those I found being not more than 24 inches high."

"A low, densely branched shrub, up to 2 feet high: last year's branches slightly angular, brown, the young ones purplish, often bloomy: spines 1 to 3 parted, one-fourth to three-fourths inch long; leaves linear, as long as the spines, strongly revolute at the margin, spiny pointed; bright green; flowers 1 or 2, on slender pedicels, about one-fourth inch long; fruit globose, bluish black, about one-fourth inch in diameter." (*Rehder, in Bailey, Standard Cyclopedia of Horticulture.*)

Distribution.—The southern part of South America, extending from latitude 30° S. in Chile southward to the Strait of Magellan.

35924. Berberis darwinii Hooker. **Michai.**

"(No. 141. March 1, 1913.) Very common in southern Chile, but only at San Martin did I find fruit. Doubtless the coldest locality in which I found it."

"An evergreen shrub of dense habit, from 6 to 12 feet high: branchlets covered with a dense, reddish brown down. Leaves very dark, glossy green, stalkless, hard in texture, obovate, three-fourths inch to 1½ inches long, the apex three spined, and with one to several spiny teeth down each side; they spring in tufts from the axils of short multiple spines.

35918 to 35975—Continued.

Flowers on drooping racemes 1½ to 2 inches long, each flower on a slender stalk longer than itself, deep golden or orange colored, tinged with red; petals elliptical, notched at the tip. Fruit plum colored, roundish oval, the size of small peas.

"Native of Chile; first discovered by Charles Darwin in 1835, when attached as naturalist to the *Beagle* on her famous voyage. It was introduced in 1849 by William Lobb for Messrs. Veitch, from the Island of Chiloe. One of the finest of all evergreen shrubs; this is also tolerably hardy. It likes a good loamy soil and should be given a position sheltered from cutting winds. It is in its greatest beauty, of course, during April and May, when laden with its profusion of golden blossom, but it is often very attractive also in early autumn, bearing a large crop of the bluish berries and occasionally a small crop of flowers. Should be propagated by seeds." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 238.*)

35925. CARICA CANDAMARCENSIS Hook. f. **Mountain papaya.**

From Quillota, Chile. Received June 6, 1913. "(No. 254.) Seeds of papaya. These fruits were grown in Quillota and are therefore perhaps as hardy as any to be had in Chile. Otherwise they are not noteworthy."

See S. P. I. Nos. 35142 and 35143 for previous introductions and descriptions.

35926. CISSUS STRIATA Ruiz and Pavon.
(*Vitis striata* Miq.)

From Concepcion, Chile. Received June 6, 1913. "(No. 133.) An ornamental climber which produces an enormous quantity of dark-blue berries. Found on the hills above Concepcion."

"An evergreen climber; young stems slender, angled, hairy, and very leafy; tendrils threadlike. Leaves 1½ to 3 inches across, composed of five scarcely stalked leaflets radiating from the end of a common stalk three-fourths of an inch to 1½ inches long. Leaflets obovate or oblanceolate, one-half inch to 1½ inches long, one-fourth to three-fourths inch wide; tapered at the base, coarsely toothed towards the apex, each tooth tipped abruptly with a short gland; dark glossy green, and smooth on both surfaces. Flowers green, produced in small cymes. Fruits about the size and shape of small red currants, but of a reddish purple color.

"Native of Chile and south Brazil; introduced about 1878. Against a wall this survives all but the hardest winters, but is tender in the open. It is a very elegant plant, luxuriantly leafy, and with beautifully cut leaves. Tweedie, the Kew collector in South America, called it the 'ivy of Uruguay,' and says it covers the bushes with red berries in winter. It thrives very well in the south and west [of England] and bore large crops of fruit at St. Leonards as long ago as 1885, but the berries were purplish rather than red. When cut down to the ground by frost it will often break up again the following summer, but on the whole it is only well adapted for the mildest counties." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, pp. 676–677.*)

35927. CISSUS STRIATA Ruiz and Pavon.
(*Vitis striata* Miq.)

From Chile. Received June 10, 1913.

"(No. 138.) Similar to No. 133 (S. P. I. No. 35926). Found between Concepcion and Talcahuano."

35918 to 35975—Continued.

35928 to 35932. COTONEASTER spp.

35928. From Chile. "(No. 59.) A shrub with a dark-green rather glossy foliage, of compact habit, and exceedingly thorny. It produces an abundance of purplish blue berries one-fourth to three-eighths inch in diameter, which add to the attractiveness of the shrub. It should make an excellent hedge plant."

35929. From Chile. "(No. 60.) Similar to No. 59 (S. P. I. No. 35928), but less thorny."

35930. From Llifen, Chile. "(No. 115.) Hedge plant with small glossy leaves and sharp thorns. It produces an abundance of small berries, and the plant should make a very attractive hedge. Flowers not seen."

35931. From Panguipulli, Chile. "(No. 129. February 23, 1913.) Hedge plant, produces a large crop of blue berries and is much taller growing than the *Colletia* sp., No. 35951."

35932. From Lancotrara, Chile. "(No. 130.) A shrub similar to No. 35931."

35933 to 35942. CUCUMIS MELO L. **Muskmelon.**

35933. From Concepcion, Chile. "(No. 85.) Rather small, of gourdlike appearance, secured in the market at Concepcion. Apparently very few European or North American seeds are sold in Chile. The farmers save their own seeds from year to year, and consequently there is a greater chance of securing unusual strains than would be the case if they planted only European or North American varieties."

35934. From Concepcion, Chile. "(No. 86.) Rather small, elongated, mottled yellow; secured in the market at Concepcion."

35935. From Santiago, Chile. Received June 10, 1913. "(No. 250.) White flesh and good quality."

35936. From Santiago, Chile. Received June 6, 1913. "(No. 249.) Melon with white flesh and of good quality."

35937. From Santiago, Chile. Received June 6, 1913. "(No. 251.) Melon with white flesh and of good quality."

35938. From Santiago, Chile. Received June 10, 1913. "(No. 252.) Melon with white flesh, good quality."

35939. From Concepcion, Chile. Received May 7, 1913. "(No. 88.) Round, medium size. For further notes, see S. P. I. No. 35933."

35940. From Concepcion, Chile. Received May 7, 1913. "(No. 89.) Large, deep yellow, good quality. For further notes, see S. P. I. No. 35933."

35941. From Concepcion, Chile. Received May 7, 1913. "(No. 90.) Medium size. For further notes, see S. P. I. No. 35933."

35942. From Chile. "(No. 175.) This melon was cylindrical in shape, about 13 inches long, with deep, white flesh and of fair quality. So many melons are picked before they are properly ripened that it is difficult to judge what the quality might be if they matured on the vines."

35943 and 35944. CUCURBITA spp. **Squash.**

From Chile.

35943. "(No. 317.)" **35944.** "(No. 318.)"

35918 to 35975—Continued.

35945. TRICONDYLUS FERRUGINEUS (Cav.) Salisb.

From Villarica, Chile. "(No. 113. February 17, 1913.) A particularly fine bignoniaceous ornamental tree perhaps 20 to 30 feet high, with finely divided fernlike foliage. Lago Villarica, north side."

35946 and 35947. EMBOTHRIUM COCCINEUM Forst. **Ciruelillo.**

35946. "From Valdivia, Chile. (No. 174. March 15, 1913.) Ornamental tree about 20 to 30 feet high. Said to have very handsome red flowers."

"This remarkable evergreen small tree perhaps hardly comes within the scope of this work, for it is suitable only for the mildest parts of our islands, such as Cornwall, the southwest of Ireland, and similar places. It has dark glossy green, somewhat leathery leaves, ovate-lanceolate or oval, 2½ to 4½ inches long, three-fourths inch to 1½ inches wide; blunt ended, smooth and entire. Flowers brilliant crimson scarlet, produced in wonderful profusion in short axillary and terminal racemes. Each flower is borne on a thin stalk one-half to three-fourths inch long, and is at first a slender tube 1 to 1½ inches long; afterwards the four strap-shaped lobes (in the broadest part of which the anthers are enclosed) curl back, exposing the long, erect style. Perhaps no tree cultivated in the open air in the British Isles gives so striking and brilliant a display of color as this does. In some of the Cornish gardens there are specimens 30 feet high, and about the same through. Like many of its natural order [Proteaceæ] it is often short lived, and after 20 to 25 years is liable to die suddenly without any assignable reason. A native of Chile; introduced by William Lobb in 1846; flowers in May. A tree 40 feet high at Kilmacurragh has a trunk 1½ feet in thickness and produces suckers from the roots." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, pp. 510–511.*)

35947. "From Quilan, Chile. (No. 190.) Ornamental tree with handsome red flowers. Grows 20 to 30 feet high."

35948 to 35950. ENARGEA spp.

From Chile. Received June 10, 1913.

35948. "From Lago Villarica. (No. 101.) A vine with foliage slightly resembling smilax and quite ornamental. Flowers were not seen. Found in the dense forest on the north side of Lago Villarica."

35949. "(No. 185.) A vine with attractive smilaxlike foliage, berries red, flowers not seen."

35950. "From Quilan, Chile. (No. 188.) A vine quite similar to No. 185 (S. P. I. No. 35949), but with white berries. Found south of Quilan.'

35951. COLLETIA sp.

"From Panguipulli, Chile. (No. 128.) A shrub growing 4 to 5 feet high; very thorny and suitable for hedges."

35952. FUCHSIA MACROSTEMA Ruiz and Pavon. **Fuchsia.**

"From Quilan, Chile. Received June 10, 1913. (No. 192.) South of Quilan. Probably two species mixed. These grow about 6 or 8 feet high."

35953. FRAGARIA CHILOENSIS (L.) Duchesne. **Strawberry.**

From Chiloe, Chile. Received June 10, 1913. "(No. 186.) These fruits were much out of season and were quite round, very different in form from those

35918 to 35975—Continued.

sent from Santiago. Millions of these plants grow on the sands of the shore, sometimes hardly beyond the reach of the waves. West coast of Chiloe."

35954 and 35955. GEVUINA AVELLANA Molina. **Avellano.**

35954. From southern Chile. Received June 10, 1913. "(No. 229. February 16, 1913.) The nuts are edible and the tree is a remarkably handsome one. It should prove a very desirable ornamental wherever it can be grown in the United States. Found between Petrufquen and Villarica, but widely distributed in southern Chile."

35955. From Chile. Received May 7, 1913. "(No. 56.) An evergreen tree with very handsome foliage, and when loaded with its bright-red nuts it is particularly fine as an ornamental. The nuts are about five-eighths of an inch in diameter and are agreeable in taste. The tree grows well on the hills near Concepcion, but is probably more abundant and reaches its greatest development in the province of Valdivia, where the rainfall is greatest. Its maximum height is about 25 feet."

35956. GREIGIA SPHACELATA (Ruiz and Pavon) Regel.

From Quilan, Chile. Received June 10, 1913. "(No. 227.) *Chuno*. Perhaps a species of Bromelia. The natives eat the seed capsule, which contains a sweet juice, and consider it a delicacy. Should not be confused with the dried potato called *chuño* in Peru."

35957 and 35958. GUNNERA CHILENSIS Lam.

Received June 10, 1913.

35957. "From Panguipulli, Chile. (No. 93.) *Nalca*. An araceous plant growing in very wet, springy ground at Panguipulli. It is sometimes called Chilean rhubarb, and the leaf stalks are utilized in the same way that rhubarb is. The natives are quite fond of it, but North Americans and Europeans do not consider it quite equal to rhubarb. I was told that an excellent jelly could be made from the juice. In some other parts of Chiloe, notably on the island of Chiloe, the plant attains a large size, the leaves standing considerably above a man's head, and the leaf stalks are 4 or 5 inches in diameter. These large plants were found on high, sandy bluffs near the sea. The plant seems to adapt itself to a variety of situations."

35958. From Valdivia, Chile.

"(No. 195.) Market at Valdivia, but obtained wild in several other places."

35959. LAPAGERIA ROSEA Ruiz and Pavon.

From Concepcion, Chile. "(No. 319.) Copihue."

"Stems many feet in length, climbing, terete, branched, naked below, here and there scaly. Leaves petiolate, ovate-lanceolate, coriaceous, glossy, acuminate, five nerved, and reticulated. Peduncles axillary and solitary, longer than the petioles, bearing a single, handsome, lilylike pendulous flower, of a deep-red rose color, internally especially spotted with white. Outer sepals spatulate, with a gibbosity at the base, inner ones resembling them, but broader and more spotted. Stamen and style shorter than the perianth. The roots are used by the Chilenos as a substitute for sarsaparilla (*Smilax sarsaparilla*). The large, oblong, pulpy berry is prized as an esculent fruit, having a sweet and most agreeable flavor." (*Botanical Magazine, pl. 4447, 1849.*)

35918 to 35975—Continued.

35960. LARDIZABALA BITERNATA Ruiz and Pavon.

From Llifen, Chile. "(No. 152. March 8, 1913.) This fruit is sweet and very agreeable; grows about 2½ inches long."

"A climbing, copiously leaved evergreen shrub, native of Chile, and growing as far south as Concepcion. Davy, who introduced the plant by sending it to Messrs. Veitch, writes: 'When I first saw it in the Province of Concepcion I was so much struck with the singularly dark color of the flowers and the beauty of the foliage, that I gave instructions to have a root sent to me at Valparaiso, which was done; and it is the plant now in your possession. The fruit is sold in the Chilean markets.' According to Decaisne, cordage is made of the tough fiber. A climbing shrub, with terete, but often twisted branches, bearing leaves, which, especially in the flowering branches, are generally simply ternate, but sometimes biternate and triternate; the leaflets petioled, subcoriaceous, evergreen, ovate, here and there almost spinosely dentate, dark green above, paler and reticulated beneath. Peduncles solitary, from the axil of a leaf; at the base bearing two large unequally cordate spreading bracteas; these we also find at the axil of the leaf, even where there is no flower stalk. Flowers forming a dense drooping spike of numerous rather large, deep purplish, chocolate-colored flowers. The calyx is of six rhombeo-ovate, spreading, fleshy sepals, nearly equal in our specimens. Corolla of six spreading, lanceolate, or almost subulate white, mealy, membranaceous petals. Stamens six, united into a column, and bearing six spreading, oblong, slightly incurved, apiculated, 2-celled anthers opening at the back. A native of woods in the south of Chile, it proves perfectly hardy in this climate [London]. A plant in this garden [Kew] has withstood the cold of the last three winters without injury, and Mr. Veitch informs us that in his nursery there is a specimen 12 feet high growing against a wall. It is a beautiful evergreen creeper, with dark-green foliage, and well adapted for covering high walls. It is a rapid grower, and apparently not particular as to situation, but, from its habit, we infer that shady places suit it best." (*Botanical Magazine, pl. 4501, 1850.*)

35961 and 35962. LATHYRUS spp.

35961. "From Lago Villarica, Chile (No. 106). Growing along the stony beach, north side of Lago Villarica. Not common."

35962. "From Argentina (No. 134, March 4, 1913). In the forest along the shore of Lago Lacar."

35963. CUCUMIS MELO L. **Muskmelon.**

From Concepcion, Chile. "(No. 87.) Small, of very fair quality. For further notes, see S. P. I. No. 35934."

35964 and 35965. LATHYRUS spp.

35964. "(No. 140.) Near Huahun, Argentina, February 28, 1913."

35965. "(No. 179.) From Quilan, west coast of Chiloe."

35966. LATHYRUS SATIVUS L.

From Talcahuano, Chile. "(No. 240.) *Chichara.*"

35967. LAURELIA SEMPERVIRENS (Ruiz and Pavon) Tul.

From Panguipulli, Chile. "(No. 127.) An evergreen forest tree attaining a height of 70 feet and valued for its timber, which is used principally for interior work or for furniture. The foliage and flowers are aromatic."

35918 to 35975—Continued.

35968. LITHREA CAUSTICA (Mol.) Hook. and Arn.

From Concepcion, Chile. "(No. 43.) A small shrub on the dry hills above Concepcion. Probably of interest only in a botanical garden."

35969. LUPINUS ARBOREUS Sims.

From near Talcahuano, Chile. "(No. 57.) This species grows about 4 feet high on light, rather dry soil, and may prove useful as a sand binder."

"A low, woody shrub with succulent branches. Leaves petiolate, in alternate fascicles about four together; leaflets lanceolate, broadest towards the point, acuminate, slightly pubescent or silky, underneath. Flowers in terminal, distantly verticillated spikes, 3 to 5 in each whorl, with pedicels nearly the length of the flower; sweet scented. Calyx bilabiate; lips entire, acute, keeled, the upper one shortest. Corolla yellow, vexillum orbiculate, reflected at the side; wings large, covering the keel and joined together at the point; keel acute, black pointed. Pod flat, pointed at both ends. Seeds somewhat oblong, very little flattened, shining, black. It is usually treated as a greenhouse plant, but at the Botanic Garden, Oxford, we observed in the same year a large shrub growing in the open ground, in a sheltered situation, in front of the greenhouse, where it produced an abundance of ripe seeds." (*Botanical Magazine, pl. 682, 1803.*)

35970. MIKANIA sp.

From Concepcion, Chile. "(No. 46.) A vine with large clusters of small white flowers. After the petals fall the reddish pappus remains, and it is even more conspicuous."

35971. MUTISIA LATIFOLIA Don.

From Lancotrara, Chile. Received June 10, 1913. "(No. 100.) From south of Villarica. A vine with pink flowers (Compositæ) very similar to the vine with red flowers obtained in the mountains above Santiago."

35972. MUTISIA sp.

From Huahun, Chile. Received June 10, 1913. "(No. 135, March 4, 1913.) A composite vine with pink flowers. Apparently the same as that found at Lancotrara (S. P. I. No. 35971), but this is a much higher altitude."

35973. PSIDIUM sp.

From Chile. "(No. 181.) A shrub 3 to 8 feet high, very compact in habit, and with rather glossy foliage. The flowers are white and the fruits are a half inch or more in diameter. These fruits were collected from shrubs growing along the edge of a huge sand dune and half a mile or more from the seashore at Quilan on the west side of the island of Chiloe, in what is probably a region of very heavy rainfall. This species may probably serve as a stock for the strawberry guava."

35974 and 35975. PERSEA LINGUE (Ruiz and Pavon) Nees. **Lingue.**

From Chile.

35974. "(No. 99, February 20, 1913.) From the south side of Lago Villarica. This is a large forest tree, the bark of which is extensively used in tanning. It is said to contain about 18 per cent tannin. I understand that the seeds are very difficult to germinate."

35975. "From Molco. (No. 169.) *Lingue.* See previous number 99 (S. P. I. No. 35974) for description."

35976 and 35977. ASPARAGUS spp. **Asparagus.**

From Smyrna, Turkey. Presented by Mr. M. E. Lambichi. Received September 22, 1913.

35976. "Called *Acutifolius.*" (*Lambichi.*)

35977. "Nicknamed in Smyrna *Avrouniae.*" (*Lambichi.*)

35978 to 36000.

Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Quoted notes by Mr. Wight, except as indicated.

35978. CHENOPODIUM QUINOA Willd. **Quinoa.**

"From La Paz, Bolivia. (No. 390.)"

35979. PSIDIUM sp. **Guava.**

"From Panguipulli, Chile. (No. 116, February 24, 1913.) A shrub 3 to 8 feet high, very compact in habit, and with rather glossy foliage; the flowers are white; fruits a half inch or more in diameter. This species may possibly serve as a stock for the strawberry guava."

35980 to 35982. TRITICUM AESTIVUM L. **Wheat.**
(*Triticum vulgare* Vill.)

35980. "From Chile. (No. 180.) Wheat said to be an old Spanish variety, called *Candiel*. From Quilan, west coast of Chiloe Island."

35981. "(No. 230.) *Cuyo*. Said to have been brought by the first Spanish colonists. From Quilan, west coast of Chiloe Island."

35982. "(No. 231.) This has been grown for nine years in Chiloe. Previously brought from Osorno, Chile, and originally from Germany."

35983. TROPAEOLUM TUBEROSUM Ruiz and Pavon.

"(No. 111.) Found between Petrufquen and Villarica, Chile. A vine with rather small digitate leaves and very handsome red flowers, resembling nasturtiums somewhat, though smaller. This is one of the most attractive small climbers I have seen."

35984 and 35985. PHASEOLUS VULGARIS L. **Bean.**

"From Panguipulli, Chile. No names were known for the beans at this place, but most of them were different from those found farther north."

35984. "(No. 92.)" **35985.** "(No. 95.)"

35986. DRIMYS WINTERI Forster. **Canelo.**

"From Panguipulli, Chile. (No. 96.) A tree with rather broad leaves, and growing perhaps 30 feet high. It is one of the very few native trees that have been grown in Chilean nurseries, and this to a very limited extent. Flowers were not seen."

"*Laura*, a shrub, which grows usually about 5 meters high and is characterized by small, thick green leaves, green bark, and the green berries which it bears in February and March in large clusters." (*Willis, Northern Patagonia, p. 362.*)

"A handsome evergreen shrub, rather tender, and really satisfactory only in the milder parts of the kingdom: young shoots smooth, often tinged with red. Leaves lanceolate, 5 to 10 inches long, smooth, bright, rather pale green, very aromatic when crushed. Flowers borne in a cluster of loose umbels, from four to seven in each umbel; they are ivory white, fragrant, and about 1¼ inches across; petals linear, pointed, spreading.

35978 to 36000—Continued.

"Native of South America from Tierra del Fuego to north of the equator; introduced as a living plant in 1827, but known since 1578, in which year its bitter, aromatic bark was brought home by Capt. Winter (after whom it is named) in one of Drake's ships from the Magellan Straits. In the southwest of England it is a free-growing shrub 12 to 25 feet high; but, wild in South America, it is described as over 40 feet high. At Gravetye Manor, near East Grinstead, a group of plants 4 feet high came through the trying winter of 1908–09 with little injury. At Kilmacurragh, County Wicklow, a specimen is 30 feet high." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, pp. 502–503.*)

35987. (Undetermined.)

"From Lago Villarica, Chile. (No. 108. February 17, 1913.) A vine climbing on trees to the height of 20 feet. Flowers 1¼ inches long, red, and very handsome. Leaves small."

35988. AEXTOXICON PUNCTATUM Ruiz and Pavon. **Palo muerto.**

"From Lago Villarica, Chile. (No. 109. February 17, 1913.) A forest tree with foliage resembling Elaeagnus. It is known locally in Chiloe as *Tique*. Should be valuable as an ornamental."

35989. ROSA sp. **Rose.**

"From Llifen, Chile. (No. 117.) This has run wild in many localities in southern Chile. The fruits are unusually large, and from them the natives make a most excellent marmalade. This suggests the possibility of improving both this and other species of Rosa with large fruits."

35990. PERNETTYA MUCRONATA (L. f.) Gaud.

"(No. 119.) A small ornamental shrub with white berries, resembling Symphoricarpos. From the east end of Lago Rinihue."

"A hardy, evergreen shrub, of considerable beauty, on account of the neat appearance and dark color of its foliage; its flowers are pretty, but they are small, and do not make much appearance. Within three years it has formed a bush 3 feet 6 inches in diameter, and 2 feet 6 inches high." (*Botanical Register, pl. 1675, 1834.*)

35991. (Undetermined.)

"From Chile. (No. 121.) A very compact creeping plant which may be used as a lawn cover in shady places, perhaps. It forms a very close, compact mat. It has small yellowish berries, resembling those of some species of Relbunium."

35992. UGNI MOLINAE (Barn.) Turcz. **Murta.**
(*Myrtus molinae* Barn.)

"From Llifen, Chile. (No. 124.) *Murta.* A myrtaceous shrub with edible berries, often gathered and sold in the markets of various towns. A dulce is made from these berries that is considered very fine. No attempt has been made to cultivate, but with selection no doubt a berry considerably larger could be obtained. Found near Llifen, near Lago Ranco."

"A Chilean evergreen, with leathery, ovate leaves very like those of the myrtle, but with smaller flowers, shorter inclosed stamens, and reflexed, awl-shaped sepals. Petals five. It is sometimes grown on walls, and is only about as hardy as the myrtle itself. It bears a blue-black, juicy, and very palatable fruit." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 92.*)

35978 to 36000—Continued.

35993. PHASEOLUS VULGARIS L. **Bean.**

"From Angol, Chile. (No. 132.) A bean which Mr. Manuel Bunster, at Angol, obtained from Los Angeles, Chile, but for which he has no name. He considers it one of the best he has ever grown, both as to quality and productiveness."

35994. (Undetermined.)

"From Chile. (No. 136.) Half vine, half shrub, with long racemes of black berries. Found at the east end of Lago Rinihue. Flowers not seen. Apparently not common."

35995. VICIA sp.

"From Quilan, Chile. (No. 182.) This, of course, has been introduced from Europe."

35996. PISUM ARVENSE L. **Field pea.**

"(No. 183.) A variety grown at Quilan, Chile."

35997. PERNETTYA MUCRONATA (L. f.) Gaud.

"From Quilan, Chile. (No. 189.) A thorny shrub with very handsome edible pink berries. An excellent hedge plant."

"An evergreen shrub, 2 to 5 feet high, spreading freely by suckers and forming ultimately a dense, low thicket; young branches thin and wiry, sometimes furnished with a few appressed, forward-pointing bristles, or short down, but usually becoming smooth in a short time. Leaves alternate, dense upon the branches, ovate to oblong, very shortly stalked, one-third to three-fourths inch long, one-eighth to one-fourth inch wide, toothed and spiny pointed, hard in texture. Flowers produced singly in the leaf axils near the end of the shoot, in May. Corolla white, nodding, cylindrical, about one-fourth inch long, five toothed. Calyx five lobed, green; stamens 10; flower stalk one-fourth inch long. Fruit a globose berry one-third to one-half inch in diameter, containing many very small seeds; it varies in color from pure white to pink, lilac, crimson, and purple, or almost black.

"Native of the region about the Straits of Magellan; introduced in 1828. This is one of the hardiest of South American shrubs and is rarely severely injured by frost in the neighborhood of London. Certainly it is one of the finest ornamental berry-bearing shrubs we have. Its berries attain their color by early autumn, and remain on the branches through the winter and following spring. The Pernettya was long strangely neglected, but a great fillip to its cultivation was given by an exhibit in London made about 1882 by an Irish nurseryman, Mr. T. Davis, who showed a number of remarkably beautiful varieties he had raised during the previous 20 or more years in his own nursery. The Pernettya is about the only shrub that has been cultivated and selected with a view to the beauty and variety of its fruit, apart from edible qualities. In Kew, the fruits are never touched by birds, although in some gardens they are said to be stripped in winter—possibly by pheasants.

"The chief cultural requirements of Pernettya are a cool, moist bottom, and a soil free from lime, with which either peat or decayed leaves or both should be freely mixed. It likes full sunshine, and can be propagated by seeds, division, or cuttings. The last two are best for selected varieties." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, pp. 127–128.*)

35978 to 36000—Continued.

35998. ZEA MAYS L. **Corn.**

"From Castro, Chile. (No. 232.) This is said to be the only corn that will ripen at Castro. It is not from shortness of the season that the difficulty arises, but from the very small amount of sunshine. It should be interesting to see what can be made of this in some of the Northern States where the season is short."

35999. BYRSONIMA sp.

"From Concepcion, Chile. (No. 233.) *Queulle.* A tree which grows wild in the mountains two days' journey from Concepcion. The fruit is yellow, about the size of a plum. Some of them are excellent in a fresh state when well ripened, but chiefly prized for making dulce."

36000. DRIMYS WINTERI Forster. **Canelo.**

"From Lago Villarica, Chile. (No. 110. February 16, 1913.) Small tree." See S. P. I. No. 35986 for description.

36001. BUDDLEIA ALBIFLORA Hemsley.

From Edinburgh, Scotland. Presented by the Royal Botanic Garden. Received June, 1912.

"A central Chinese species related to *B. davidii* (*B. variabilis*), but differing in its robust, upright growth, in its leaves nearly twice as long, and its smaller flowers without orange in the throat." (*Koehne, in Gartenflora, vol. 52, pp. 169–171, 1903.*)

"A strong-growing deciduous shrub, said by Henry to be sometimes a small tree 20 to 30 feet high; branches erect, soon quite smooth. Leaves narrow lanceolate, with a long, tapered point and wedge-shaped base 4 to 9 inches long, one-half inch to 2½ inches wide, toothed, dark green, and soon becoming smooth above, covered beneath with a close, fine, silvery gray felt. Flowers fragrant, lilac (not white), with orange-colored centers, produced from July onwards in slender, tapering panicles 8 to 18 inches long, 2 inches wide at the base, terminating the main shoots, with smaller ones on lateral shoots. Corolla tube one-fourth inch long, persisting, as in other species, until burst off by the swelling seed vessel beneath it. Calyx smooth, bell shaped, with pointed narrow lobes.

"Native of China; discovered by Henry, and introduced in 1900 by Wilson, who observes that it is fairly common on the shrub-clad mountains of central China at 3,000 to 6,000 feet altitude. With the general aspect of *B. variabilis*, it is not so good a shrub; the branchlets are not so square, the leaves are more distinctly stalked, and the calyx differs in being smooth." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, pp. 270–271.*)

36002. MANGIFERA INDICA L. **Mango.**

From Columbia, Isle of Pines. Presented by Mr. L. S. Brown. Received at the Plant Introduction Field Station, Miami, Fla., July 16, 1913.

"A very fine mango, nearly fiberless and of very fine flavor. The tree yielded some 6,500 fruits last year (1913)." (*Brown.*)

36003. TRITICUM DURUM Desf. **Spring wheat.**

From Semipalatinsk, Siberia. Presented by Mr. I. M. Karzin, at the request of Mr. F. N. Meyer.

"Spring wheat, *Sineuska*, or *Chernouska*. Crop of 1910. Pale velvet chaff, brown beards." (*Karzin.*)

36004 to 36008.

From Guaquin, Bolivia. Presented by Dr. C. W. Foster, at the request of Mr. W. F. Wight, of the Bureau of Plant Industry. Received July 11, 1913.

"Grains grown at the southern extremity of Lake Titicaca, at an elevation above 12,500 feet, some as high as 13,000 feet." (*Wight.*)

36004. TRITICUM AESTIVUM L. **Wheat.**
(*T. vulgare* Vill.)

36005. HORDEUM VULGARE L. **Barley.**

36006 and **36007.** CHENOPODIUM QUINOA Willd. **Quinoa.**

36006. "Red or mixed." **36007.** "White."

36008. VICIA FABA L. **Broad bean.**

36009. ERYTHRINA ARBORESCENS Roxburgh.

From Darjiling, India. Presented by Mr. Wilson Popenoe, of the Bureau of Plant Industry. Received July 28, 1913.

"This tree is indigenous to the central and eastern Himalayas, up to the altitude of 7,500 feet. In Darjiling, where there is an occasional snowfall in winter, it seems perfectly hardy, and should, therefore, withstand the frosts of southern California and south Florida without injury. As the annual rainfall at Darjiling is about 130 inches, however, the dry climate of California may not be well suited to it. Attaining a height of 30 or 40 feet and bearing its brilliant flowers in the greatest profusion, it naturally forms a very prominent feature of the landscape; in fact, it may be said to be the most conspicuous of all plants in Darjiling.

"The leaflets are dark green, cordate, sometimes a foot in breadth. The tree is not deciduous during the flowering season. and hence does not exhibit the bare appearance so much objected to in many erythrinas. The flower spikes are often a foot in length, the individual tubular flowers being 2 inches long and of the most brilliant scarlet. The effect produced by the tree when in full bloom is nothing short of gorgeous, reminding one, in fact, of the royal poinciana.

"This species is quite frequently placed on slopes or hillsides to prevent the soil from washing. It is so easily propagated by cuttings that trimmings, when thrown on the ground, will quickly take root and form new trees." (*Popenoe.*)

36010. COLOCASIA sp. **Taro.**

From Tolga, Queensland, Australia. Presented by Mr. J. A. Hamilton. Received August 21, 1913.

"This taro seems to like volcanic soil. Whether it is the same as the one in Hawaii I do not know, but in flavor it is equally good. It was introduced here by the Chinese and grown along the banks of small creeks and springs, but I have found that by planting the tubers out on good cultivated soil at the beginning of the wet season they produce tubers of superior flavor, better than where the taro is flooded. A clay loam is best." (*Hamilton.*)

"This taro is apparently identical with the *Pat long fu* (S. P. I. No. 29327) from Canton, China. It is of excellent quality, but a poor keeper." (*R. A. Young.*)

36011. ALLIUM CEPA L. **Onion.**

From Denia, Spain. Presented by the American consul. Received August 21, 1913.

See S. P. I. No. 26134 for previous introduction and description.

36012 to 36015.

From Soochow, China. Presented by Mr. N. Gist Gee, Soochow University. Received August 21, 1913.

36012. AMYGDALUS PERSICA L. **Peach.**
(*Prunus persica* Stokes.)

36013. ERIOBOTRYA JAPONICA (Thunb.) Lindl. **Loquat.**

"*Bibo* seeds."

36014. MYRICA RUBRA Sieb. and Zucc.
(*Myrica nagi* Thunb.)

"*Yang mei.*"

36015. PRUNUS ARMENIACA L. **Apricot.**

36016. TERMINALIA EDULIS Blanco. Calumpit.

From Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Bureau of Agriculture. Received August 26, 1913.

"A large, attractive tree, with rounded well-formed crown, quite open, giving half shade, and therefore making a desirable shade tree where dense shade is not desired. The fruit is a little larger than a cherry, dark red, fleshy, subacid, and edible. Ripens in June and July, when the fruit is collected and eaten by the Filipinos. As far as I know, the tree is never cultivated. The species ought, of course, to do well in Porto Rico and elsewhere in tropical America, and may possibly succeed in extreme south Florida." (*Wester.*)

36017. PENTAPETES PHOENICEA L.

From Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Bureau of Agriculture. Received August 26, 1913.

"A robust herb attaining a height of 2 meters. On account of its attractive, intense orange-red flowers, it makes a good ornamental. Collected by me in Mindanao last year." (*Wester.*)

36018 to 36037.

From Seharunpur, India. Presented by the Government Botanical Gardens, through Mr. Wilson Popenoe, of the Bureau of Plant Industry.

Quoted notes by Mr. Popenoe, except as indicated.

36018. PHYLLANTHUS NIVOSUS W. G. Smith.

"Var. *atropurpureus*. This is a small, semideciduous shrub, very similar in growth to *P. nivosus roseopictus*, so common in south Florida. Like the latter, it may be of value as a hedge plant. The young growth is of varying shades of purplish maroon."

36019. ERYTHRINA sp.

"A large shrub, rather open in growth and not particularly attractive in appearance, but producing an abundance of the most brilliant crimson flowers imaginable. It is considered of unusual value as an ornamental; in fact, I was told at one of the large botanical gardens in India that it was the finest flowering shrub in their collection."

This was received as *Erythrina blakei*, for which no place of publication has yet been found.

36018 to 36037—Continued.

36020. Ficus saemocarpa Miquel.

"An evergreen shrub, with glossy, deep-green leaves. Considered to be of value as an ornamental."

36021. Garcinia livingstonei T. Anderson.

"A small-sized tree, with handsome, shining foliage. The fruits, which are deep orange in color and about 2 inches in diameter, are not edible, but are produced in such abundance as to make the tree of great value as an ornamental. The chief reason for the introduction of this species, however, lies in the possibility of its being used as a stock for the more tender mangosteen, *Garcinia mangostana*. Temperatures as low as 20° F. above zero have been recorded at Seharunpur; this species should, therefore, be sufficiently hardy to do well in south Florida and possibly in the warmest parts of California."

36022. Excoecaria bicolor (Hassk.) Zoll.

"An ornamental shrub with copper-colored leaves."

Distribution.—The islands of the Malay Archipelago.

36023. Calliandra haematocephala Hasskarl.

"A dwarf, woody shrub of very slow growth. Its flowers are bright crimson."

"A most lovely shrub with us, but eventually forming a tree 30 to 40 feet high, according to Hasskarl; the native country does not appear to be known. A shrub with glabrous, terete, green branches and copious petiolate unijugate leaves; each pinna is about 5 inches long and paripinnulate, with 7 to 10 pairs of opposite pinnules, the lowest and shortest an inch long, gradually enlarging upward to 1½ inches long, all of them more or less spreading, oblong lanceolate, scarcely acuminate, two nerved, the base equally sided, some of them, especially the superior ones, slightly falcate. Stipules, small, green, from a broad base subulate. Petioles about an inch long. Peduncles as long as the petioles, bearing a capitulum of small flowers, of which the calyx and corolla are almost concealed by the quantity of rich-colored filaments of the stamens, which radiate from a center and form a ball of scarlet threads. Calyx minute, five lobed. Corolla small, infundibuliform. Stamens united into four bundles. Anthers minute, abortive. Ovary oblong. Style a little longer than the stamens." (*Botanical Magazine, pl. 5181, 1860.*)

36024. Petrea volubilis L.

"A woody climber producing handsome sky-blue flowers. Considered one of the choicest climbing plants in Seharunpur."

"There appear to be two varieties of this shrub, one with white, the other with violet-colored corollas, but the calyx in both is blue; Jacquin found it in Martinique, where he says it ascends to the top of trees 20 feet high. The corolla, which is five cleft and subbilabiate, is of very short duration, but as the calyx is a conspicuous part of the flower, the long racemes hanging pendant from the extremities of the branches make a handsome appearance for some time. It is a very ornamental shrub, blossoming in the West Indies in November." (*Botanical Magazine, pl. 528, 1803.*)

Distribution.—Central America and South America, extending from Panama to Brazil, and in the West Indies.

36025. Heimia myrtifolia Cham. and Schlecht.

"A dwarf, compact, ornamental shrub, producing bright-yellow flowers."

36018 to 36037—Continued.

36026. SARACA INDICA L.

"A small, evergreen tree, with handsome glossy foliage and heads of brilliant red flowers. One of the finest of Indian ornamental trees. It is not generally considered very hardy, but the fact that it succeeds at Seharunpur would indicate that it is a possibility for south Florida."

Distribution.—From the western and central slopes of the Himalayas, in northern India, where it rises to an elevation of 2,000 feet, southward to Ceylon and Malakka, and generally throughout the islands of the Malay Archipelago.

36027. HIBISCUS SCHIZOPETALUS Hook. f.

"A shrub of rather open and scraggly growth, but producing handsome scarlet flowers of very peculiar form. In color the flowers resemble the common *Hibiscus rosasinensis*, but the petals are somewhat smaller, recurved, and finally divided, giving them a feathery appearance."

36028. BARLERIA STRIGOSA Willdenow.

"A handsome dwarf shrub, going under the vernacular name of *bansa*. Its flowers, which are produced in large heads, are of a brilliant blue color."

Distribution.—Common on the lower hills of Bengal up to an elevation of 4,000 feet, and generally cultivated in India and the islands of the Malay Archipelago.

36029 to 36037. MANGIFERA INDICA L. **Mango.**

Inarched trees of the following:

36029. "*Hains Sahib*. Said to have originated in Lahore, in the Punjab. The name is the Hindustani equivalent for 'Mr. Hains.' In general form this variety is oblong, the left shoulder very prominent, right shoulder almost none. Apex blunt to rounded, the nak prominent, situated about one-fourth inch above the longitudinal apex. Weight about 13 ounces. Skin smooth, light yellowish green in color, tinged with red on one side. Flesh light yellow in color, slightly fibrous around the seed, very juicy, but with a slight taste of turpentine. Seed rather large."

36030. "*Nayab*. A rather small, elliptical mango, weighing about 5 ounces. Left shoulder considerably higher than the right. Apex rounded, nak pointed, somewhat prominent, located one-half inch above the apex. Skin orange yellow in color. Flesh light orange, somewhat acid in flavor. The turpentine taste is very slight. Ripens in midseason and keeps well."

36031. "*Krishna bhog*. Name signifies 'Food of the God Krishna.' Nearly spherical in form, the left shoulder slightly higher than the right. Size large, the average weight being about 1 pound. Apex broadly pointed, nak not prominent. Skin smooth, yellowish green in color. Flesh deep yellow in color, slightly fibrous, firm and meaty, and very sweet in flavor. Ripens rather late and keeps well. Considered on the whole a very good variety."

36032. "*Alfonso of Lahore*. A good form of the famous Alfonso type. Originated in Lahore. Broadly oval or somewhat heart shaped, both shoulders equal in prominence. Weight average, about 10 ounces. Apex broadly pointed, the very prominent nak being located about one-half inch above it. Skin slightly undulating, greenish yellow in color, sometimes tinged with red on the cheek, flesh bright yellow, very juicy, and almost free from fiber, aromatic, and of a delicious flavor."

36018 to 36037—Continued.

36033. "*Naspati.* Oblate and somewhat oblique in form, slightly flattened at both base and apex. Nak a slight point, situated one-half inch above apex. Weight about 10 ounces. Skin smooth, greenish yellow in color, and of good flavor. The variety ripens late and is a good keeper."

36034. "*Sufaida No. 1.* Oval to elliptical in form, the left shoulder prominent, right shoulder falling. Apex broadly pointed and slightly beaked. Weight 1 pound and 4 ounces. Skin smooth, yellowish green in color. Flesh yellow, slightly fibrous around seed, firm and meaty, and of good flavor. Late in ripening and keeps well."

36035. "*Kachamitha.* A small, ovate fruit, of about 5 ounces in weight. Left shoulder slightly higher than the right; apex rather sharply pointed. Skin smooth, greenish yellow, tinged with red on the cheek. Flesh deep yellow in color, juicy and sweet in flavor. Can be eaten even when unripe. A prolific bearer, ripening early in the season. Keeps well."

36036. "*Chapta.* Ovate in form, stem inserted slightly to right side of base. Apex broadly pointed. Weight about 14 ounces. Skin smooth, light green in color. Flesh deep yellow, juicy, and of excellent flavor. Proportion of flesh to seed is unusually large."

36037. "*Faizan.* Elongated in form, and of medium size. Skin yellowish green in color. A good keeper and of excellent flavor. Ripens in midseason."

36038 and 36039. MANGIFERA INDICA L. Mango.

From Mozufferpur, Behar, India. Procured by Mr. Wilson Popenoe, of the Bureau of Plant Industry.

Quoted notes by Mr. Popenoe.

"Mozufferpur produces some of the best mangos in India, and is said to possess some exceptionally choice varieties. These varieties were obtained from a Hindu nurseryman and were stated to be choice, but no description was furnished with them. Mozufferpur has a much heavier rainfall than Seharunpur, and for this reason it was thought desirable to obtain mangos from here, in the hope that they might be better adapted to the climate of south Florida than other Indian varieties."

36038. "Inarched tree labeled E." **36039.** "Inarched tree labeled K."

36040 to 36045.

From Seharunpur, India. Received from the Government Botanical Gardens, through Mr. Wilson Popenoe, of the Bureau of Plant Industry, May 7, 1913.

Plants of the following; quoted notes by Mr. Popenoe:

36040 and 36041. VITIS VINIFERA L. **Grape.**

36040. "*Bedana* grape, small variety. A seedless grape of excellent flavor, which is supposed to have come to Seharunpur from some point in the Punjab, and originally to have come from Afghanistan. It is perhaps too small to be of great value in America, but at Seharunpur it is highly esteemed as a table variety."

36041. "*Husseini* grape. A variety from Kabul, Afghanistan, of large size and excellent quality, but probably not superior to a number of varieties already growing in California."

36040 to 36045—Continued.

36042. LITCHI CHINENSIS Sonnerat. **Litchi.**
(*Nephelium litchi* Cambess.)

"The *Bedana* litchi, famed throughout India. This is supposed to be a seedless variety, as the name indicates, but I am informed on good authority that the seed is usually present, but varies in size according to locality and culture, and is sometimes very small. It is a very choice variety, the plant being propagated by layering."

36043. EUGENIA EUCALYPTOIDES Mueller. **Gum rose-apple.**

"This species of Eugenia has a leaf much resembling that of some species of Eucalyptus and is a handsome ornamental shrub. In addition, it produces a fruit somewhat less than an inch in diameter, highly valued in its native country (Australia) for the manufacture of wine."

Distribution.—Gravelly places along the Victoria River, in North Australia.

36044. HYMENODICTYON EXCELSUM (Roxb.) Wallich.

"A large ornamental tree, with copper-colored foliage. Should be hardy enough for south Florida and southern California."

36045. RIVINA LAEVIS L.

"A dwarf ornamental shrub, producing yellow berries, which remain on the plant for some time."

36046. ELAEOCARPUS BANCROFTII Muell. and Bailey.
Ebony-heart tree.

From Brisbane, Australia. Presented by Mr. William Soutter, secretary and manager, Queensland Acclimatisation Society. Received August 27, 1913.

"Sometimes called *Johnstone River almond*, or *ebony-heart tree of the Cairns;* is an evergreen tree of the linden family, often reaching a height of over 100 feet and a diameter of over 2 feet. Leaves simple; small white flowers in racemes, sepals and petals five, the stamens indefinite, inserted upon a swollen lobed disk, and having long, downy unequal-celled anthers, usually ending in a bristle. Ovary from two to five celled, the fruit containing a very hard, rough-shelled nut, divided into as many 1-seeded cells as the ovary, or sometimes all but one cell imperfect. The wood is hard and durable, light, with a darker color in the center; likely to prove useful for sheaves for blocks. It considerably resembles the American lignum vitæ, for which, indeed, it might form a good substitute." (*Soutter.*)

36047 and 36048.

From San Salvador, Salvador. Presented by Mr. Thomas Hinckley, American consul general. Received August 6, 1913.

36047. PASSIFLORA LIGULARIS Juss. **Granadilla.**

"The granadilla has a fruit the size of a large egg, yellow when ripe, and within which the seeds are enwrapped in a mass of mucilage of delicate taste, which is neither food nor drink." (*Pittier, Las Plantas Usuales de Costa Rica.*)

36048. SOLANUM MURICATUM Aiton. **Pepino.**

"The sweet pepinos procured were practically seedless, these 19 seeds being all that there were in eight large ripe ones. This plant is propagated in Salvador by cuttings." (*Hinckley.*)

36049 to 36051.

From Angola, Africa. Presented by Rev. William C. Bell, Lockport, N. Y. Received August 1, 1913.

36049. TRICHOLAENA ROSEA Nees. **Natal grass.**
(*Panicum teneriffae* R. Br.)

"(No. 1.) Native name *Ohulongombo* or *ohulumgumbi;* found throughout central Angola. Grows in deserted fields and very rankly, even though the soil is poor and dry. Will grow in gardens among cultivated crops, but wants a sandy soil. It is much liked by oxen and makes good hay if cured early. Heads stripped from the stalks make good pillows and mattresses. It is almost impossible to kill it out when once established." (*Bell.*)

36050. SCIRPUS sp.

"(No. 2.) Native name *Owangu wovosima.* Found all around Bailundo, Angola, where the growing or wet season extends from October 1 to the close of April; then, with the cessation entirely of all the rains and with cooler nights, vegetation dries up. These specimens were found in central Angola near a marshy spot where the cattle were constantly feeding. It is a low-growing plant, making large stools." (*Bell.*)

36051. MELINIS MINUTIFLORA Beauv. **Gordura grass.**

"(No. 3.) Native name *Ongendungolo.* As the name indicates, this grass goes on its knees. It does not grow upright but more like a vine. It is said to have seeds, but I was unable to secure any. It is similar to No. 1 (S. P. I. No. 36049) in every respect." (*Bell.*)

36052 and 36053. MANGIFERA INDICA L. Mango.

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received August 11, 1913.

36052.

"*Pahutan mango.* A very high-flavored mango having a comparatively large seed; the color of the peel never assumes the bright yellow tints of the *Pico* and *Carabao* varieties. On account of the great vigor and size of the tree this variety will succeed best as a stock." (*Barrett.*)

36053.

"*Pico.* This ranks next to the *Carabao* as the best mango in the Philippines. It has a more pronounced flavor, the flesh is of a salmon instead of yellowish color, the shipping and keeping qualities are as good, and the amount of fiber is very little greater." (*Barrett.*)

36054. BRASSICA PEKINENSIS (Lour.) Skeels. Pai ts'ai.

From Tientsin, China. Procured through Dr. Yamei Kin. Received August 12, 1913.

"The people had some trouble to get a sufficient quantity from reliable sources, for they say that at a distance of only 6 li (2½ miles) even, the character of the *pai ts'ai* changes. It is easily grown, but for some unexplained reason the abundance of the crop varies greatly, one year a head producing quite a little handful and again, although the conditions seem to be the same, they will get scarcely a cupful." (*Kin.*)

36055. SECALE CEREALE L. Winter rye.

From Omsk, Siberia. Presented by Prof. N. E. Hansen, Agricultural Experiment Station, Brookings, S. Dak. Received August 12, 1913.

Hansen No. 1 winter rye.

36056 and 36057.

From Mount Silinda, Melsetter, South Rhodesia. Presented by Dr. W. L. Thompson, American Board Mission in South Africa. Received August 11, 1913.

36056. IPOMOEA BATATAS (L.) Poir. **Sweet potato.**

"(No. 1.) Very vigorous, and with us here a very satisfactory variety. They are the opposite of vineless, making exceptionally long vines. The tubers form more quickly than many of our varieties here, and are good size, good shape, and good eating qualities. One peculiarity I have not noticed in any other red sweet potatoes, if boiled and the thin skin stripped off, they are still red under the skin, though just below the surface they are a rich golden yellow." (*Thompson.*)

36057. COLOCASIA sp.

"(No. 2.) An arum, called here *Amadumba*, which we prize as a vegetable. I suppose it must be of the same family as the dasheen. This is the best by far that we have here, though several other varieties are eaten." (*Thompson.*)

"The plants of this dasheen are much like those of the Trinidad variety, except that the petioles of the former are shaded the entire length with maroon." (*R. A. Young.*)

36058. NYPA FRUTICANS Wurmb. **Nipa palm.**

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received August 11, 1913.

"The nipa is an erect, stemless palm of which the leaves and inflorescence rise from a branched rootstock, the leaves running from 9 to 20 feet in length. It grows along the tidal marshes of rivers in low, wet lands subject to overflows of brackish water as the tides rise each day, and it will not thrive where either fresh or sea water alone is available. Nipa swamps of considerable size occur in practically all the Philippines, and inasmuch as they occur in lands which otherwise are useless or almost without value, the cultivation of nipa palms where they are cultivated, or the presence of nipa trees wild where not cultivated, affords a profitable crop on little original outlay.

"The nipa palm is one of the most useful plants in the Philippines or other tropical countries. Its uses are outlined in the report of the Philippine Internal Revenue, as follows: 'Of the leaf, the leaflets are used in the manufacture of shingles for house building, hats, mats, and bags, pails for dipping water, and for coarse baskets; the midribs for brooms, tying rice bundles, and for sewing nipa shingles; and the stalk for fuel, for floating logs, and as material for sewing shingles; the fruit is used as food and sweet meats; and the sap is used fresh as a drink, fermented (tuba) as a drink, and for the manufacture of sugar, alcohol, and vinegar.'

"The chief use of the plant, however, aside from the use of the fiber for hats and various articles, is in the use of the sap for the manufacture of alcohol and native drinks. From the sap come all the possibilities of sugar making. The report of the bureau shows the cost of producing alcohol from the nipa paka as 2.7 cents gold per liter (1.05 quarts) as compared with 5.8 cents per liter for alcohol from sugar beets at $5 per ton; 5 cents for alcohol from sugar cane at $3.25 per ton; 3.4 cents from cassava at $5 per ton; 6.6 cents from corn at 70 cents per 56-pound bushel, and similar costs from other sources. The reports claim that alcohol can be made more cheaply from the nipa palm than from any other material. Moreover, the sap ferments with unusual rapidity, so that in less than 20 hours the liquor is ready to be poured into the stills. There is one distillery in the Philippines which is now producing 93 per cent alcohol 186 proof at a cost of 10 centavos, or 5 cents gold per liter on a 12-hour run at the distillery, and on a 24-hour basis with a little reorganization it is known that the alcohol can be manufactured at present in this establishment at 3.5 to 3.75 cents gold per liter.

"The sugar-making possibilities of these saps, considered commercially, seem to hinge largely upon conditions under which the sap can be gathered and handled. The saps of the three principal sugar-bearing palms, the nipa, the coco, and the buri [see S. P. I. No. 35689], run remarkably close together in composition. The average composition at 15/15 density runs about 17.5 per cent solids; 0.46 per cent ash; 0.54 per cent nitrogenous compounds, etc.; 16.5 per cent sucrose and traces of reducing sugars and acidity. As they exude from the trees these saps are generally neutral, but they ferment quickly, and one of the problems in sugar making would be the preservation of sap until it could be worked.

"The sap from these trees as a rule is obtained through the flower stalk. In the nipa the flower stalk is cut off immediately below the fruit. It is generally tapped the fifth year. Each day a thin slice is cut from the severed stem to keep the wound fresh and facilitate the flow of sap. The sap is collected in bamboo joints (Spanish, *bombones*) hung on the stem, generally having a capacity of about two liters. One stalk normally flows about three months, but it is not uncommon for it to be cut entirely away by the thin slices from day to day, long before the flow has ceased. In some districts the plant is cut before the fruit forms, and the flow of sap is increased thereby so far as daily output is concerned, but the length of the flow is shortened, the total yield of the plant apparently being about the same by either method. The plants are allowed to rest and put forth new fruit stalks after being thus exhausted. How long they continue to bear is uncertain, but all authorities agree that a plant will continue to produce sap for many years, probably for 50 years or more on an average. The yield of sap also is uncertain, and estimates vary between wide limits. An experienced distiller says that each plant will average about 1¼ quarts daily, or 13.2 gallons for a season." (*George E. Anderson, in abstract of report by Dr. H. D. Gibbs on the Alcohol Industry in the Philippines, in Daily Consular and Trade Reports, December 4, 1911.*)

36059. Olea verrucosa (R. and S.) Link. **Wild olive.**

From Simondium, near Paarl, Cape Province, Union of South Africa. Presented by Mr. C. W. Mally, entomologist, Department of Agriculture, Cape Town. Received August 11, 1913.

"A tree so like the European olive that where the two are growing alongside in cultivation it is difficult to find a distinction except the size of the fruit. Leaves lanceolate or linear lanceolate, 2 to 4 inches long, one-third to one-half inch wide, tapering somewhat to both ends, acute, coriaceous, shortly petioled, the under surface clothed with small, flat, scarious yellowish scales so closely adpressed as to give the appearance of a glabrous yellow surface, the upper surface and the twigs sometimes similarly clad at first and afterwards glabrous, in other cases almost glabrous from the first. Panicles axillary, trichotomous, not much branched, rather shorter than the leaves. Bracts deciduous. Fruit an oblong dry drupe about one-fourth inch long, shortly pointed. Usually a tree 20 to 30 feet high, 12 to 18 inches in diameter, branched a good deal, and with little clean timber; occasionally, however, trunks 3 feet in diameter, exceedingly gnarled and hollow, are to be found, even up in the Herschal district, which, considering its slow growth, must have taken a very long time to grow. The timber, which is of a dark gray or almost black color and often wavy in grain, is equal to *Ptaeroxylon utile* in durability as a fencing pole, and even the branches make good poles. Fourcade describes the wood as 'extremely heavy, very hard, very strong, moderately elastic, very close grained, and compact.' About 3,000 dry seeds go to 1 pound weight; the seeds, however, do not germinate quickly, and as hard-wood cuttings strike, that method of propagation is preferred. In cultivation it is found to be liable to attack by a mealy aphis. The European olive has been successfully budded upon young plants of this species." (*Sim, Forest Flora of Cape Colony.*)

36060. MEIBOMIA HIRTA (Guill. and Per.) Kuntze.

(*Desmodium hirtum* Guill. and Per.)

From Kyimbila, German East Africa. Presented by Mr. Ad. Stolz. Received August 14, 1913.

"This plant has the great recommendation that one can take rooted cuttings of the plant, so that for propagation one does not need the long wait for seed, and with large 1 to 1½ meter cuttings one comes much more quickly to the desired end than with small seedlings. Crop plants, such as coffee, tea, rubber, lianas, cedars, etc., have taken a significant fresh appearance after having *D. hirtum* planted between them. This shows itself especially on this year's fresh powerful shoots of the plants; hence, the fertilizing value of this legume must be significant. It fertilizes not only other plants, but itself, for where after a space of 12 months a spindling plant wanders through the soil, it rises itself in the following year to an entirely different luxurious plant. On poor soils the shoots lie flat on the ground, reaching a height of 2 to 5 centimeters. On the other hand, on good soil the shoots in the first year attain a height of 30 centimeters. I have observed it at elevations of 500 to 1,600 meters above sea level. *D. hirtum* is also not to be underrated as forage, for asses and sheep eagerly eat the shoots. It is indeed a typical meadow plant, with scanty growth and runner formation between the high-grass haulms. Here I found it with other legumes, of which our meadows produce enough. I made a test of all the species, of which *D. hirtum* turned out to be the best, for on loosened soil the plant could show its possibilities.

Cultivation.—The seed should be sown broadcast in a well-prepared seed bed, which must, above all, be kept moist, in order that the seed shall not dry out and that the young plants shall grow more quickly; since where the plants stand too closely together it is necessary to thin them to 10 centimeters, it is well, as soon as the runners reach a length of 10 to 20 centimeters, to plant the young plants in groups one-half by 1 meter or 1 by 1 meter in well-loosened soil. The looser and better the soil is so much the quicker *D. hirtum* develops, and puts forth shoots during the year from 1 to 1½ meters long, which quickly root in loose soil and furnish cuttings for transplanting. In growing from seed it is worth while, above all, to grow quickly good strong runners, which as soon as they have rooted should be planted in the rainy season, and easily increase. In order to further the growth, the land must above all be kept clean of weeds. Later the long shoots hinder the growth of weeds. After seed production the plant dies down almost two-thirds; from the rootstock and the still living shoots spring forth runners, which grow over the dead parts and reach a height of from 2 to 30 centimeters." (*Stolz.*)

36061. LANSIUM DOMESTICUM Jack. **Duku.**

From Buitenzorg, Java. Presented by the director, Department of Agriculture. Received August 14, 1913.

See S. P. I. No. 35906 for previous introduction.

36062. LEUCADENDRON REPENS L. **Sugar bush.**

(*Protea mellifera* Thunb.)

From South Rhodesia, Africa. Received from Mr. G. P. Rixford, of the Bureau of Plant Industry, who secured them from Mr. George T. Ruddock, San Francisco, Cal. Received August 11, 1913

"*Veldt plant.* A shrub of from 4 to 6 feet high. Before opening, the bud resembles a globe artichoke. Flowers white; beautiful for parks." (*Rixford.*)

"A glabrous shrub or small tree, having narrowly lanceolate and rather blunt leaves, 3 to 5 inches long, one-third inch wide above, tapering gradually to the base. Head 4 inches long, cup shaped, 3 inches wide, red and pretty; the inner bracts rather longer than the pistils, oblong lanceolate, pointed, the outer wide and short; all glabrous and viscid. Perianth segments glabrous, ciliated below, bearded on the face above. Ovary bristly." (*Sim, Forest Flora of Cape Colony.*)

36063 and 36064.

From Hawaii. Received from Mr. G. P. Rixford, of the Bureau of Plant Industry, who secured them from Mr. George T. Ruddock, San Francisco, Cal. Received August 11, 1913.

36063. PSIDIUM GUAJAVA L. **Guava.**

"Gathered on the island of Hawaii on the road from Hilo to the volcano, at an elevation of 3,000 feet. Probably the same as lemon guava." (*Rixford.*)

36064. RUBUS sp.

"Native thimbleberry. Picked December 15, on the road from Hilo to the volcano, on the island of Hawaii. A shrub about 18 inches high. Fruit of a beautiful scarlet color and of a delicious flavor." (*Rixford.*)

36065. PISTACIA INTEGERRIMA Stewart. **Kaka.**

From Lahore, India. Presented by Mr. W. R. Mustoe, superintendent, Government Agricultural Horticultural Gardens. Received August 15, 1913.

Introduced as possible stocks for the true pistache (*Pistacia vera*).

"A deciduous tree with rough, gray bark. Wood very hard, sapwood white, heartwood yellowish brown, beautifully mottled with yellow and dark veins. Annual rings marked by a belt of large pores. Pores in the rest of the wood very small, forming irregular patches, which are frequently arranged in zigzag lines. Medullary rays fine, very numerous. It is chiefly found on dry slopes and in valleys along the rivers, Suliman and Salt Ranges, and outer Himalayas, ascending to 6,500 feet and extending as far east as Kumaon.

"Growth moderate, eight to nine rings per inch of radius. Weight 54 pounds per cubic foot. The wood is used for furniture, carvings, and all kinds of ornamental work. It is usually sold in the hill bazaars and particularly at Simla, in the form of thick, short planks. The leaves are lopped for fodder for buffaloes and camels and the galls are used in native medicine. Brandis says that in Kangra, under native rule, the tree was a 'badsháhi,' or royal tree. The young leaves are red, and the tree, if well grown, is graceful and pretty." (*Gamble, Manual of Indian Timbers.*)

36066. LITCHI CHINENSIS Sonnerat. **Litchi.**

(*Nephelium litchi* Cambess.)

From Mozufferpur, Behar, India. Procured through Mr. Wilson Popenoe, of the Bureau of Plant Industry. Received May 7, 1913.

"*Rose.* Mozufferpur is considered to produce the best litchis in India; whether this is due to the superiority of the varieties or to the especially favorable conditions of soil or climate, I am unable to ascertain. Certain it is, however, that the Rose litchi is one of the best Indian varieties, and on this account it is well worthy of trial in south Florida." (*Popenoe.*)

Layered plants.

36067 and 36068.

From Epsom, Auckland, New Zealand. Presented by Mr. D. Petrie. Received August 25, 1913.

36067. NOTOSPARTIUM CARMICHAELIAE Hooker.

"A beautiful broomlike leafless leguminous plant of our flora. Gathered near the mouth of the Clarence River, Marboro, South Island." (*Petrie.*)

36067 and 36068—Continued.

"This shrub or small tree is a native of New Zealand and is known by the colonists as the *pink broom*. The plant was discovered on Christmas, 1853, by the late Dr. Munro, on the sandy and rocky banks of the Waihopai River, in Nelson Province. This plant succeeds best in peaty soil, but it can also be grown well in turfy loam. It is a moderate-sized shrub in cultivation in England and produces weeping, cordlike, leafless branches, from which the short racemes of pink or purplish flowers are freely produced." (*Gardener's Chronicle, August 24, 1907; Hooker, New Zealand Flora.*)

36068. PITTOSPORUM DALLII Cheeseman.

"An ornamental small tree, gathered on the mountains of South Island. The specimen is part of the only parcel of seed that has so far been secured. Sent me by a botanical friend." (*Petrie.*)

"This is a remarkably distinct plant, with very different foliage from that of any other New Zealand species. The flowers are quite unknown. This species came from the mountains near Collingwood, South Island. It is apparently a small tree with stout branches, the youngest of which are glabrous and are covered with a yellow bark." (*T. F. Cheeseman, Manual of the New Zealand Flora.*)

36069. CARICA CANDAMARCENSIS Hook. f. **Mountain papaya.**

From Peradeniya, Ceylon. Presented by Mr. H. F. Macmillan, superintendent, Royal Botanic Gardens. Received August 28, 1913.

"*Mountain papaw.* A small semiherbaceous tree with a crown of large, coarse, palmate leaves, native of Colombia and Ecuador, similar to the papaw of the low country, but with fruit only about one-fourth or one-sixth the size of that of the latter. It has been introduced at Hakgala Gardens, Ceylon, in 1880, and is now commonly grown in hill gardens for the sake of its fruit, being often found in a seminaturalized state about up-country bungalows. The ovoid angular fruit is in season all the year round; though too acid to be used for dessert, it is very agreeable when stewed, and it can also be made into jam and preserves. When ripe, the fruit has a pleasant applelike odor. Propagated by seed." (*Macmillan's Handbook of Tropical Gardening and Planting.*)

36070. MANGIFERA INDICA L. **Mango.**

From Beira, Mozambique. Presented by the Director of Agriculture. Received August 30 and September 2, 1913.

"Cuttings of the *Diamond* mango obtained from the island of Chiloane in this territory."

These are supposed to be the same as the Lathrop mango, described under S. P. I. Nos. 9486 and 9669.

36071. RUBUS PHOENICOLASIUS Maxim. **Bramble.**

From Cambridge, England. Presented by Mr. R. Irwin Lynch, curator, Cambridge Botanic Gardens. Received August 29, 1913.

"A conspicuous and unique-looking Japanese bramble, the young shoots and leaf stalks of which are densely clothed with long bright-red setæ and very long stalked glands of the same color. As the plant matures, the deep color gives way to a paler shade. The papery leaves, the under surfaces of which are of almost a snowy whiteness, are trifoliate on both the barren and fertile stems, the long-stalked terminal leaflets being much the largest. The compact panicles of the fruit are borne on short branches given off at right angles from the main stem, thus forming a compact pillar almost from the ground. When ripe, the fruit is of a beautiful bright coral red." (*Gardener's Chronicle, 1879.*)

36072. Psidium sp. **Guava.**

From San Marco, Cuba. Presented by Mr. Robert Reid. Received September 3, 1913.

"*Peruvian.* A pear-shaped fruit; some specimens I have seen 5 inches in length; thick meat, and very small seed cavity; a teaspoon will hold all the seeds and pulp they are embedded in." (*Reid.*)

36073 to 36086.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received at the Plant Introduction Field Station, Chico, Cal., August 13, 1913.

Quoted notes by Mr. Meyer, except as indicated.

36073. Triticum aestivum L. **Wheat.**

"(No. 1858a. Pie Shan, Chihli Province, China. May 25, 1913.)"

"A mixture of red and white wheat, the red predominating. Probably a winter wheat." (*C. E. Leighty.*)

36074 to 36077. Holcus sorghum L. **Sorghum.**
(*Sorghum vulgare* Pers.)

36074. "(No. 1859a. San Tun Ying, Chihli Province, China. May 30, 1913.) A variety of sorghum growing very strong and tall, having brown-red seed. Mostly used mixed with chopped straw as food for cattle and horses; also much used in spirits manufacture. Chinese name *Hong gao-liang.*"

36075. "(No. 1860a. San Tun Ying, Chihli Province, China. May 31, 1913.) A rare local variety of sorghum, having its grain half white and half red. Mostly used for human consumption. Chinese name *Kuan tung ching gao-liang.*"

36076. "(No. 1861a. San Tun Ying, Chihli Province, China. May 30, 1913.) A variety of sorghum growing tall and strong, bearing large white grains. Mostly used as a human food in the form of gruel or porridge with the grain coarsely broken. Chinese name *Pei gao-liang.*"

36077. "(No. 1862a. San Tun Ying, Chihli Province, China. May 31, 1913.) A rare variety of sorghum of which the grains are of a glutinous quality. These grains are served boiled, in the form of little cakes, over which some coarse sugar is sprinkled. They are relished by the rural people in North China. Chinese name *Mien gao-liang.*"

36078. Vigna sinensis (Torner) Savi. **Cowpea.**

"(No. 1863a. San Tun Ying, Chihli Province, China. May 31, 1913.) A variety of cowpea, of which the seeds are half white and half reddish, used as a human food boiled with rice or in soups. Chinese name *Pan hong pan pai chiang tou.*"

36079. Soja max (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

"(No. 1864a. San Tun Ying, Chihli Province, China. May 30, 1913.) A local variety of soy bean of a dull-yellow color, used in the making of bean curd and bean sauce. Requires only a short season to mature. Chinese name *Huang tou.*"

36073 to 36086—Continued.

36080. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. **Adzuki bean.**

"(No. 1865a. San Tun Ying, Chihli Province, China. May 31, 1913.) A gray, mottled variety called *Ghăe hsiăo tou.* Used boiled with rice and in soups. Supplies also an excellent winter vegetable in its bean sprouts."

36081. PANICUM MILIACEUM L. **Proso.**

"(No. 1866a. San Tun Ying, Chihli Province, China. May 31, 1913.) A glutinous variety of proso, the seeds of which are served boiled as little triangular cakes, wrapped in bamboo leaves or corn husks. They are eaten with some coarse brown sugar sprinkled over them and are greatly relished by the rural people of North China as cheap and nourishing sweetmeats. Chinese name *Shu chi.*"

36082. JUGLANS REGIA SINENSIS DC. **Walnut.**

"(No. 1868a. June, 1913.) A large quantity of Chinese walnuts coming from Changli, Chihli Province, North China. Obtained through the efforts of the Hon. Samuel S. Knabenshue, American consul general at Tientsin. These Changli walnuts have erroneously been called Manchurian walnuts by some people, because they come from near the Great Wall, and this nomenclature has given rise to newspaper reports that fine walnuts were grown in Manchuria. There is, however, a wild walnut in Manchuria, *Juglans mandshurica*, which grows into a stately tree, of which the wood is valuable, but the nuts are not fit for human consumption. From preliminary experiments, it seems that these North China walnuts are of a decidedly hardier nature than the forms which occur in western and southern Europe and in northwestern Asia."

36083. VIGNA SINENSIS (Torner) Savi. **Cowpea.**

"(No. 1869a. Tientsin, China. June 12, 1913.) A small variety of cowpea, bearing small white seeds, with a dark-colored eye. Used as a human food boiled with rice and in soups. Chinese name *Hsiao pai ching tou* or *Par tou.*"

36084 and 36085. PHASEOLUS ANGULARIS (Willd.) W. F. Wight.

Adzuki bean.

36084. "(No. 1870a. Tientsin, China. June 12, 1913.) A small white-seeded bean, used when ground up with sugar as a stuffing in little cakes. The sprouts are also much consumed as a winter vegetable and are of a better, juicier quality than those from mung beans. From experiments made at the Office of Forage-Crop Investigations, it seems as if some of these oriental beans might supply very tasteful and wholesome food when ground up and baked in the form of croquettes, and they deserve to become much more known than they are at present. Chinese name *Pai hsiao tou.*"

36085. "(No. 1871a. Tientsin, China. June 14, 1913.) A larger variety than the preceding one (S. P. I. No. 36084); otherwise the same remarks apply to it. Also called *Pai hsiao tou.*"

36086. PRUNUS TOMENTOSA Thunb. **Bush cherry.**

"(No. 1872a. Tientsin, China, June 12, 1913.) About 42,000 stones of the Chinese bush cherry. A fruit eminently suited for the home garden in the colder, semiarid sections of the United States. The Chinese usually bud or graft this bush cherry on the remarkably thrifty wild peach (*Amygdalus davidiana*), on which stock it makes a much more vigorous growth and is also better able to withstand drought and adverse conditions than when left on its own roots. Seeds and scions formerly sent under S. P. I. Nos. 16918, 17732, 17733, 20075,

36073 to 36086—Continued.

20240, 20287, 20288, 21924, 30317, 30318, and 30362. These bush cherries deserve especially to be tried at the Mandan garden. Chinese name *Ying tau'r.*"

36087. BRASSICA NAPUS L. Rape.

From New York, N. Y. Purchased from the Nungesser-Dickinson Seed Co. Received September 4, 1913.

36088. ANTIDESMA BUNIUS (L.) Spreng. Bignai.

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received August 30, 1913.

"The bark of *Antidesma bunius*, which is a native of Java and the adjacent isles, affords a fiber from which ropes are made. The fruits are of a bright-red color, ripening into an intense black, with a subacid taste. They are used in Java for preserving, principally by Europeans, bringing about twopence per quart. The leaves are used as a remedy against snake bites, and in syphilitic affections. The wood, when immersed in water, becomes black and as heavy as iron. All the parts of the plant have a bitter taste." (*A. A. Black, in Lindley's Treasury of Botany.*)

36089. MEDICAGO SATIVA VARIA (Mart.) Urb. Sand lucern.

From New York, N. Y. Purchased from the Nungesser-Dickinson Seed Company. Received August 18, 1913.

36090 to 36092.

From Lal Bagh, Bangalore, India. Presented by the Government Botanic Gardens, Lal Bagh, through Mr. Wilson Popenoe, of the Bureau of Plant Industry. Received September 5, 1913.

36090. MICHELIA CHAMPACA L. Champac.

"This is a tall, handsome evergreen tree, known under the vernacular name of *champac*. Its flowers are pale yellow and very fragrant. May be of value as an ornamental tree for extreme southern Florida." (*Popenoe.*)

"A beautiful tall evergreen tree, much cultivated about Jain and Hindu temples and prized on account of its scented flowers. In the forest it has a cylindrical stem and reaches 8 to 10 feet in girth. The wood is very durable; in northern Bengal it is used for planking, door panels, and furniture; in Assam for building and canoes; elsewhere for house and carriage building and native drains. The bark is said to have been used as a febrifuge, but is now rarely used; the flowers and seeds also are occasionally used in medicine. The flowers are used in religious ceremonies. The wood is made into beads, and necklaces of the beads are sold to pilgrims at Hardwar." (*Gamble, Manual of Indian Timbers.*)

36091. CORDIA SEBESTENA L.

"A handsome arborescent shrub; the leaves are large and coarse. Its flame-colored flowers are borne in large trusess." (*Popenoe.*)

Distribution.—An evergreen shrub or small tree found on the Florida keys, in the West Indies, and in the northern part of South America.

36092. SARACA INDICA L.

"One of the handsomest of Indian ornamental trees, producing large heads of the most brilliant scarlet flowers imaginable. While restricted to the tropical sections of India, it may be sufficiently hardy to succeed in south Florida." (*Popenoe.*)

36093. SOLANUM sp. **Bitter potato.**

From La Paz, Bolivia. Presented by Mr. G. M. McBride, through Mr. W. F. Wight, of the Bureau of Plant Industry. Received September 9, 1913.

"Tubers of the bitter potato, grown near Lake Titicaca and sold in the markets after being frozen." (*Wight.*)

36094. TIPUANA TIPU (Benth.) Lillo. **Tipa.**

(*Tipuana speciosa* Benth.)

From Buenos Aires, Argentina. Presented by Mr. H. M. Curran. Received September 6, 1913.

"Good lumber tree and very ornamental shade tree. Much used here. Stands frost." (*Curran.*)

"Beautiful, tall, straight, stout tree with reddish wood and yellowish sapwood, soft and fibrous, difficult to saw, but sometimes used for lumber. The tree furnishes a reddish resin which easily hardens." (*Lillo. Trees of Argentina.*)

36095. GARCINIA MANGOSTANA L. **Mangosteen.**

From Jamaica, British West Indies. Presented by Mr. W. Harris, Superintendent of Public Gardens, Hope Gardens, Kingston. Received September 6, 1913.

36096. PHOENIX DACTYLIFERA L. **Date.**

From La Guaira, Venezuela. Presented by Mr. Thomas W. Voetter, American consul. Received September 10, 1913.

"The fruit of this date is somewhat like that imported into the United States, but varies slightly in flavor and texture. The seed is much larger in proportion, as a general rule." (*Voetter.*)

36097. SACCHARUM OFFICINARUM L. **Sugar cane.**

From Berja, Paraguay. Presented by Mr. C. F. Mead. Received September 9, 1913.

"*Tucuman.* Imported from Argentina. This is by far the best of all canes growing here in both yield and sugar content, and is a well-known variety." (*Mead.*)

36100. VICIA VILLOSA Roth. **Vetch.**

From Schkudy, Kovno Province, Russia. Presented by Mr. H. Judelmann. Received September 5, 1913.

36101. BUNCHOSIA COSTARICENSIS Rose. **Cereza.**

From San Jose, Costa Rica. Presented by the Department of Agriculture. Received September 3, 1913.

"Fruits of medium quality and in no way comparable with the true cherry (*cereza*) of Europe. The tree is indigenous and often cultivated in gardens. The fruit is often called *tereza*, which is but a corruption of the name *cereza*." (*Pittier, Plantas Usuales de Costa Rica.*)

36102. ATALANTIA RACEMOSA Wight.

From Gaganbavda, Kolhapur District, via Bombay, India. Presented by Mr. R. R. Dhavle. Received September 8, 1913.

"A small tree or shrub, differing from the other species of Atalantia in that it is always unarmed. It is found in the lower mountain regions of Ceylon, in southern

India, and in the western peninsula from the Konkan to Travancore. In February the plant produces its white flowers, which are arranged in short but distinct racemes with peduncles a little less than a quarter of an inch in length. The berry is globular ovoid, three-fourths of an inch wide, with a long apiculus, four celled, four seeded." (*H. Trimen, Handbook of the Flora of Ceylon, vol. 1, p. 226; Hooker's Flora of British India, vol. 1, p. 512.*)

Introduced for the citrus-breeding work of the Office of Crop-Physiology and Breeding Investigations.

36103. PENNISETUM PURPUREUM Schumacher. **Elephant grass.**

From Salisbury, Southern Rhodesia. Presented by the Assistant Government Agriculturist, Department of Agriculture. Received September 12, 1913.

"This plant seeds very shyly, but grows readily from either slips or roots."

Distribution.—A tall grass with long spikes, found in Guinea and Kamerun in West Africa and from Zanzibar to Mozambique on the east coast.

36104. SOLANUM sp. **Wild potato.**

From the island of Conejos, off the coast of Chile. Presented by Mr. R. Christie, through Mr. W. F. Wight, of the Bureau of Plant Industry. Received September 11, 1913.

"Wild potatoes. There are two kinds, or perhaps more. The stems of one kind grow to a height of over 2 meters. This kind does not come to maturity until the month of June, as I was informed by an old Indian, the other kind I think is the same that you found on the west coast. I send them just as I got them out of the earth, without washing them, as it may be of advantage for you to examine the earth in which they have grown. I have no doubt that they are the true indigenous potato." (*Christie.*)

36105. LATHYRUS sp.

From Castro, Chile. Presented by Mr. R. Christie, through Mr. W. F. Wight, of the Bureau of Plant Industry. Received September 11, 1913.

"Wild peas. They grow in sandy soil, about 10 inches high, and give an abundance of pretty blossoms in bunches and have the peculiarity that when they are ripe the pods do not open, but fall entire upon the ground." (*Christie.*)

36106. (Undetermined.)

From Concepcion, Chile. Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received May 7, 1913.

36107 to 36121.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received September 9, 1913.

Quoted notes by Mr. Meyer, except as indicated.

36107 and 36108. PRUNUS sp.

36107. "(No. 1873a. Peking, China. May 22, 1913.) A small, red, sweet cherry, bearing from one to six fruits on its forked little tomentose peduncles. Locally named *ying tau'r*. May be *Prunus pauciflora*. Probably the same species as No. 1840a [S. P. I. No. 35640]."

36108. "(No. 1874a. Peking, China. May 21, 1913.) A small, red, sweet cherry of large size and of finer taste than the preceding number, 1873a [S. P. I. No. 36107], otherwise the same remarks apply to it."

36107 to 36121—Continued.

36109 to 36111. PRUNUS TOMENTOSA Thunb. **Bush cherry.**

36109. "(No. 1875a. Tientsin, China. June 18, 1913.) A variety of the Chinese bush cherry bearing fruits of a pale-red color. For further remarks, see No. 1872a [S. P. I. No. 36086]."

36110. "(No. 1876a. Tientsin, China. June 18, 1913.) A variety of the Chinese bush cherry bearing white fruit. Chinese name *pai ying tau'r.* See remarks under No. 1872a [S. P. I. No. 36086]."

36111. "(No. 1877a. Peking, China. June 25, 1913.) About 15,000 stones of the Chinese bush cherry. The size of the fruit of this lot was somewhat smaller and the taste slightly sourer than those of which the stones were sent under No. 1872a, probably on account of its coming from a less favorable locality; otherwise the same remarks apply to it. Local name *suan ying tau'r*, meaning sour cherry."

36112. PRUNUS TRILOBA Lindley. **Plum.**

"(No. 1878a. Peking, China. July 18, 1913.) A flowering plum much cultivated in the gardens in North China and existing in a great many varieties. The color of its flowers ranges from pale pink to a dark violet-rose, while as regards size, degrees of doubleness, profusion, difference in time of opening, and lasting qualities a very great variation exists. The Chinese in the north always graft or bud this flowering plum on the wild peach (*Amygdalus davidiana*). This is mostly down in the ground, but one also finds specimens budded high up and trained as standard trees. In this way a specimen looks fine when planted in a formal courtyard. This flowering plum is also a great favorite with the Chinese for forcing. Thousands of dollars' worth of them are disposed of every winter. The few fruits that these bushes bear possess no value, being the size of a cherry covered with an inedible hairy skin of a yellowish red color when ripe and having a large stone. This shrub is much recommended for ornamental purposes all over the temperate parts of the United States, and especially for the drier sections when grafted on *Amygdalus davidiana*. For forcing purposes when budded on the last-named stock it may give surprising results for earliness. Chinese name *yu ye mei hua*, which means elm-leaved flowering plum."

For an illustration of the elm-leaved flowering plum, as found growing in China, see Plate IV.

36113. BRASSICA PEKINENSIS (Lour.) Skeels. **Pai ts'ai.**

"(No. 1879a. Peking, China. July 18, 1913.) A large variety of Chinese winter cabbage coming from near Tientsin, called *ta pai ts'ai.* Chinese winter cabbage is a vegetable of first-class quality, having a rich flavor all of its own. It is said to be very much more easily digested than the ordinary cabbage and to emit no offensive odors when being boiled. It can be served in many different ways and may be eaten boiled or stewed, raw, pickled, or salted. To obtain the best results a rich well-worked soil is needed. The plants should have a space about 2 feet in all directions and should be regularly cultivated, and they must never suffer for lack of soil moisture. The best time for sowing the seed is about the end of July or early in August; for regions with a very long summer even later will suffice. To keep them during the winter the Chinese proceed in this way: After the first heavy night frost the cabbages are pulled out by a twist of the hand, the earth roughly shaken off the roots, and the plants left lying in the field for a day or so to dry them off; then the outer leaves are pulled off, the dry soil beaten from the roots, and the cabbage brought to dry dug-out cellars, where they are neatly stored, layer on layer, with the heads facing the entrance. Dry straw is now put over them and the whole covered with a heavy

36107 to 36121—Continued.

coat of soil. When stored carefully they last until late next spring. The roots must never be cut off, as otherwise the plants begin to rot. When grown for seed the roots with just an inch or so of the leaf stumps left on them are planted out in the spring on a special piece of land where the soil is not too heavy. They soon form new rootlets, and in a short time stalks rise up, with but very scanty foliage and bearing pale-yellow flowers. The process of setting seeds takes but little time, and when all goes well one has fresh seed again in early or middle July. From the nature of the climate of North China one might predict that this cabbage will do well in those parts of America where in the late summer and fall the days are warm and dry but the nights are cool and where the soil is a trifle saline and is irrigated."

36114. BRASSICA PEKINENSIS (Lour.) Skeels. **Pai ts'ai.**

"(No. 1880a. Peking, China. July 18, 1913.) A large, quick-maturing variety of Chinese cabbage, which needs to be treated as to cultivation like the preceding, No. 1879a (S. P. I. 36113), but it being an autumn variety, does not possess any long-keeping qualities. It is, however, earlier matured, and therefore sooner available for the table. Chinese name *Pai ts'ai.*"

36115. RAPHANUS SATIVUS L. **Radish.**

"(No. 1881a. Peking, China. July 18, 1913.) A fine variety of the long, green winter radish called *Ching loba*. Especially recommended for its stomachic properties. As a winter vegetable, especially for those doing hard manual labor, this Chinese winter radish will be of inestimable value, and special effort should be made to make the American public acquainted with it. For further information, see the extensive notes under S. P. I. No. 31697."

36116. SOJA MAX (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

"(No. 1882. San Tung Ying, Chihli Province, China. May 31, 1913.) A rare variety of soy bean, of an olive color, found among seeds of the ordinary yellow variety. Chinese name *Ma chan tou.*"

36117. ERODIUM sp. **Crane's-bill.**

"(No. 1884a. Near Tientsin, China. June 16, 1913.) A vigorously growing species of the crane's-bill, apparently possessing value as a forage plant. May prove to be of special value to the western parts of the United States, and in particular to the Pacific coast region. Sow in late summer or early fall."

36118. TRICHOSANTHES KIRILOWII Maxim.

"(No. 1885a. Peking, China. June 28, 1913.) A rare perennial gourd cultivated in and near Peking for ornamental purposes and also for medicine. Chinese name *Kua lu.*"

Distribution.—The Provinces of Chihli, Kiangsu, Kiangsi, Fokien, Hupeh, and Kwangtung, in China, and in Mongolia and Chosen (Korea).

36119. HESPERIS sp.

"(No. 1886a. Tientsin, China. June 14, 1913.) An ornamental biennial crucifer having fairly large blue-violet flowers, which are among the earliest of the harbingers of spring. The Chinese do not cultivate this plant, as it easily takes care of itself, but they appreciate the flowers, as they come so early and are so attractive. The leaves and general looks of this crucifer offer nothing special, neither do the square pods, but the plant deserves to be naturalized in the United States as a beautiful harmless weed. Collected at the grounds of Mr. C. Y. Sun, at Tientsin. Sow these seeds in late summer or early fall in somewhat shady places."

36107 to 36121—Continued.

36120. Zea mays L. **Corn.**

"(No. 1887a. Peking, China. July 18, 1913.) The ordinary flint maize as sold in the markets and in the grain shops of Peking. Chinese name *Yu mi.*"

36121. Colocasia sp. **Taro.**

"(No. 23b. Peking, China. June 23, 1913.) A small dry-land dasheen much esteemed by the Chinese as a vegetable, either boiled or served stewed with fish. Chinese name *U-to.*"

"This dasheen, or taro, is of the same type as the other North China and most of the Japanese varieties previously introduced, and is not of high quality." (*R. A. Young.*)

36122 to 36124.

From Chile. Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received May 7, 1913.

36122. Escallonia pulverulenta (Ruiz and Pavon) Persoon.

"(No. 45. Concepcion, Chile.) A tree about 25 feet high, which, as it withstands considerable dry weather, may prove of value in the Southwest." (*Wight.*)

"An evergreen shrub 10 to 12 feet high, with downy, viscid, varnished branchlets. Leaves very viscid, oblong, with a rounded end and tapering base; 2 to 4 inches long, three-fourths inch to 1½ inches wide; finely toothed, bristly hairy on both surfaces, the upper one with a varnished appearance. Flowers white, densely crowded on slender, cylindrical racemes, 4 to 9 inches long, three-fourths to 1 inch through; sometimes branched at the base.

"Native of Chile, introduced early in the nineteenth century, but now uncommon. It is not hardy in any but our warmest districts, although in colder ones it may live and thrive for many years on a wall. From all the other white-flowered escallonias in cultivation, this is readily distinguished by its long, slender racemes." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 530.*)

36123. Aextoxicon punctatum Ruiz and Pavon. **Palo muerto.**

"(No. 48. Lago Villarica, Chile.) *Tecke* (*tique*). A tree sometimes reaching a height of 40 feet or more. The foliage resembles that of the Elaeagnus, although of a darker green. It is widely distributed in southern Chile and seems to thrive almost equally well in the dry summers of Concepcion and the moist climate of Chiloe. It perhaps reaches its greatest development in the Province of Valdivia." (*Wight.*)

36124. (Undetermined.)

"(No. 49.) An ornamental vine with foliage resembling smilax. The flowers had fallen, but they are evidently borne in large clusters, and there is little doubt that this will prove an exceedingly attractive vine." (*Wight.*)

36125 to 36127. Amygdalus persica L. **Peach.**

Plants grown at the Chico (Cal.) Field Station.

Quoted notes by Mr. Peter Bisset.

36125. "*Sutter Creek* on common peach, P. I. G. No. 5537. A peach of large size and good quality; ripens a little later than the well-known Elberta, which it resembles. Its chief value, however, is its remarkable resistance to peach leaf-curl."

36125 to 36127—Continued.

36126. "*Bolivian Cling* on common peach, P. I. G. No. 4466. A peach of good size, fine quality, and attractive appearance. Raised from seed sent in by Mr. Edward M. Ehrhorn. Collected in Bolivia from trees planted by the Franciscan padres."

36127. "*Bolivian Freestone* on common peach, P. I. G. No. 4466. A peach of good size, fine quality, and attractive appearance. Raised from seed sent in by Mr. Edward M. Ehrhorn. Collected in Bolivia from trees planted by the Franciscan padres."

36128. TROPAEOLUM SPECIOSUM Poepp. and Endl.

From Chile. Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received May 7, 1913.

"(No. 70. February 6, 1913.) An herbaceous vine with deeply lobed rather delicate foliage and very attractive red flowers, somewhat smaller than *T. majus*. It grows readily in some shade. Found on the hills near San Vicente." (*Wight.*)

36129 to 36131.

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé. Department of Agriculture. Received September 13, 1913.

36129 and 36130. SOLANUM COLUMBIANUM Dunal. **Potato.**

36129. "Violet flowers. From La Palma. The plants which I have here are in bloom and have white flowers, though they came from La Palma, where I have never seen the white variety; those I sent you came from the same original plant, which I brought here as a small seedling from that place; now I do not know if the plant changes in different climates or if there are a few of the white-flowered variety, whose fruits are much inferior at La Palma." (*Wercklé.*)

36130. "Violet flowers. From La Palma." (*Wercklé.*)

36131. BAMBOS sp. **Bamboo.**

"Very dwarf, very graceful; cold, near frost line." (*Wercklé.*)

36132 to 36135.

From Chile. Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received May 14, 1913.

Quoted notes by Mr. Wight.

36132 and 36133. UGNI MOLINAE (Barn.) Turcz. **Murta.**
(*Myrtus molinae* Barn.)

36132. "(No. 42.) *Murta, murtilla.* A shrub 4 to 8 feet high with rather ornamental foliage, but esteemed in Chile for its berries, which are from one-fourth to one-half inch in diameter and very palatable. They are often gathered and sold on the market in various towns, and a dulce is made from them that is considered excellent. No attempt has so far been made to cultivate this shrub in Chile, but by careful selection no doubt the size and quality of the fruit could be improved and something of value developed. It is rather widely distributed, growing in the region of dry summers as well as in Chiloe."

36133. "(No. 102.)" For description, see No. 42 (S. P. I. No. 36132). For previous introduction and description, see S. P. I. No. 35992.

36132 to 36135—Continued.

36134. Calydorea speciosa (Hook.) Herbert.

"(No. 104.) A species resembling Sisyrinchium which may prove valuable as an ornamental. It was past the blooming period when seen. Found in the forest some distance south of Lago Villarica."

36135. Sophora tetraptera J. Miller. **Pelu.**

"(No. 105.) A small leguminous tree with ornamental foliage, superior to the well-known *Sophora japonica*. The flowers were not seen, but they are said to be large and yellow."

36136. Medicago arabica (L.) All. **Bur clover.**

From Kingsboro, N. C. Purchased from Mr. J. C. Killibrew. Received August 29, 1913.

36137 to 36159.

From Chile. Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received June 10, 1913.

Quoted notes by Mr. Wight, except as indicated.

36137. (Undetermined.)

"(No. 114. February 17, 1913.) A shrub about 8 feet high of rather spreading habit and with dark-green foliage. It produces an abundance of reddish flowers about one-half to three-fourths inch long. Found in a moist situation close to the shore of Lago Villarica."

36138. (Undetermined.)

"(No. 118. March 5, 1913.) A small shrub from 1½ to 6 feet high, belonging to the family Myrtaceæ. The foliage is ornamental, but it is particularly striking when loaded with white berries, which vary from three-eighths to five-eighths inch in diameter and are edible. The berries, however, lack character, though by selection it is possible the quality could be improved."

36139. Pernettya mucronata (L. f.) Gaud.

"(No. 120.) A small shrub from 1½ to 6 feet high belonging to the family Ericaceæ. The foliage is ornamental, but the shrub is particularly striking when loaded with pink fruits, which are from three-eighths to five-eighths of an inch in diameter and are edible. The berries, however, lack character, though by selection it is possible the quality could be improved."

For previous introduction and description, see S. P. I. No. 35990.

36140. Ugni molinae (Barn.) Turcz. **Murta.**
(*Myrtus molinae* Barn.)

"(No. 123. Concepcion, Chile.) An ornamental shrub with edible red berries, from the east end of Lago Rinihue. For further notes, see No. 42 [S. P. I. No. 36132]."

For previous introduction and description, see S. P. I. No. 35992.

36141. (Undetermined.)

"(No. 137. Lancotrara, Chile.) An ornamental shrub with handsome red berries."

36137 to 36159—Continued.

36142 to 36144. TRITICUM spp. **Wheat.**

36142. TRITICUM sp.

"(No. 148. Panguipulli, Chile.) Chilean wheat brings a higher price in the European market than that of Argentina. Several varieties may often be found in the same field, and some of these may prove of interest, as they have doubtless been grown in the country for a long period."

36143. TRITICUM sp.

"(No. 149. Llifen, Chile. March 8, 1913.) Wheat. For further notes, see No. 148 (S. P. I. No. 36142)."

36144. TRITICUM AESTIVUM L.
(*Triticum vulgare* Vill.)

"(No. 150. Llifen, Chile. March 8, 1913.) For further notes, see No. 148 (S. P. I. No. 36142)."

36145. SOPHORA TETRAPTERA J. Miller. **Pelu.**

"(No. 151. Llifen, Chile. March 8, 1913.) For description, see No. 105 (S. P. I. No. 36135)."

"A shrub or small tree, varying from 15 to 40 feet high in a wild state, the trunk 6 inches to 2 feet in diameter. It is deciduous or nearly so in the open, but evergreen in a greenhouse. Branches of young specimens very zigzag, slender, and often interlacing; on older ones the branches become short jointed, or even stunted. Branchlets, leaf stalks, flower stalks, and especially the calyx, all covered with a short, tawny down. Leaves pinnate, 1½ to 4½ inches long; leaflets, one-eighth to three-fourths inch long, narrow, oblong to roundish; their number is very variable; on young plants there are only 7 or 9, but on plants that have reached the flowering stage they are much more numerous, and up to as many as 80. Flowers somewhat tubular, golden yellow, 1 to 2 inches long, pendulous, clustered, from 4 to 8 in each raceme. Calyx obliquely bell shaped, one-half inch or more across, shallow toothed. Pod 2 to 8 inches long, four winged, with constrictions between the seeds." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 521.*)

36146 and 36147. (Undetermined.)

36146. "(No. 153. March 6, 1913.) An ornamental shrub found between the pass Llifen and Baños Chihuic."

36147. "(No. 184.) A tree 20 to 30 feet high with dark-green linear leaves and very handsome red flowers about 2 inches long. This grew in a very dense, moist forest on the west coast of the island of Chiloe, in a region not heretofore visited by any collector. It should make a very fine ornamental."

36148. AEXTOXICON PUNCTATUM Ruiz and Pavon. **Palo muerto.**

"(No. 187. Quilan, Chile.) A tree growing to a height of 40 or more feet; the foliage resembles that of Elaeagnus, but darker green."

See description under S. P. I. No. 36123.

36149. (Undetermined.)

"(No. 193.) A shrub with red berries."

36137 to 36159—Continued.

36150 and 36151. UGNI MOLINAE (Barn.) Turcz. **Murta.**
(*Myrtus molinae* Barn.)

36150. "(No. 194. Valdivia, Chile.) A shrub 4 to 8 feet high, with rather ornamental foliage, but esteemed in Chile for its berries, which are from one-fourth to one-half inch in diameter and very palatable. They are often gathered and sold in the markets in various towns, and a dulce is made from them that is considered excellent."

For further notes, see No. 42 [S. P. I. No. 36132].

36151 "(No. 190. March 27, 1913.)"

For further notes, see Nos. 42 [S. P. I. No. 36132] and 194 [S. P. I. No. 36150].

36152. (Undetermined.)

"(No. 234. Quilan, Chile.) A shrub with white berries. For description, see No. 118 [S. P. I. No. 36138]."

36153. SOPHORA TETRAPTERA J. Miller. **Pelu.**

"(No. 228.) See No. 105 [S. P. I. No. 36135] for description."

36154. SPONDIAS LUTEA L. **Hog Plum.**

"(No. 583.) This is a yellowish fruit, oblong, an inch or more in length. It is, at least at this season of the year (April-May), rather rare."

36155. LUCUMA sp. **White sapote.**

"(No. 320.) These fruits were about the size of a navel orange and excellent in quality."

36156. DAUCUS CAROTA L. **Carrot.**

"(No. 296.) Seeds of the carrot as grown by the Indians."

36157. PSIDIUM sp. **Guava.**

"(No. 103. Lancotrara, Chile. February 19, 1913.) For description, see No. 181 [S. P. I. No. 35973]."

36158. ZEPHYRANTHES sp.

"(No. 53a.)"

36159. TIGRIDIA sp.

"(No. 55a.)"

36160 to 36162. VIGNA SINENSIS (Torner) Savi. **Cowpea.**

From Zaria, Northern Nigeria. Presented by Mr. P. H. Lamb, Director of Agriculture. Received September 3, 1913.

36160. "*Farrin wake.*"

36161. "*Zako.*"

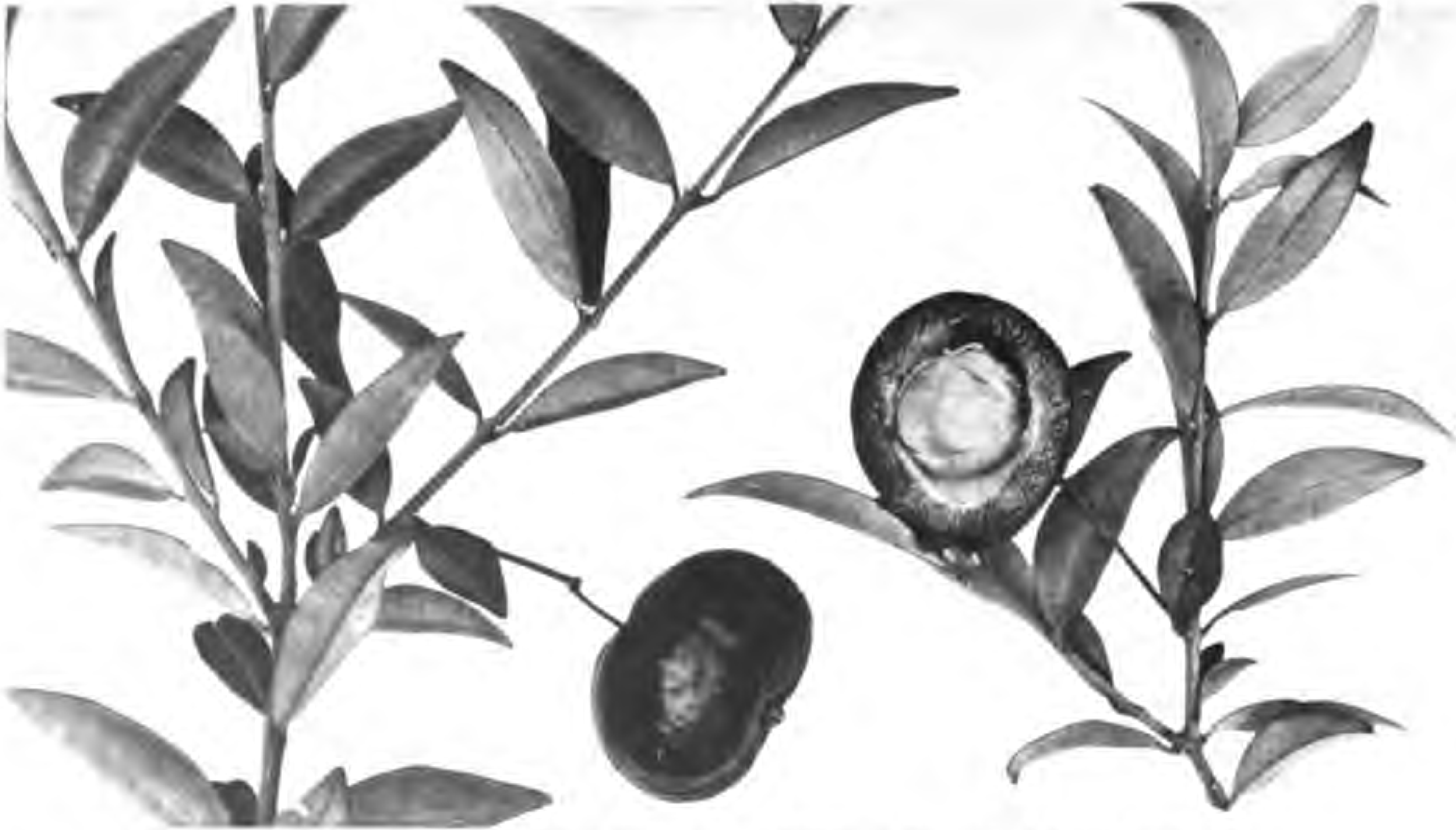
36162. "*Kananedo.*"

36163. LARIX SIBIRICA Ledeb. **Siberian larch.**

From southern Ural Mountains, Russia. Received from Mr. S. T. Dana, Forest Service, Washington, D. C., who secured them through Count von Sivers, Roemershof, via Riga, Russia. Received September 16, 1913.

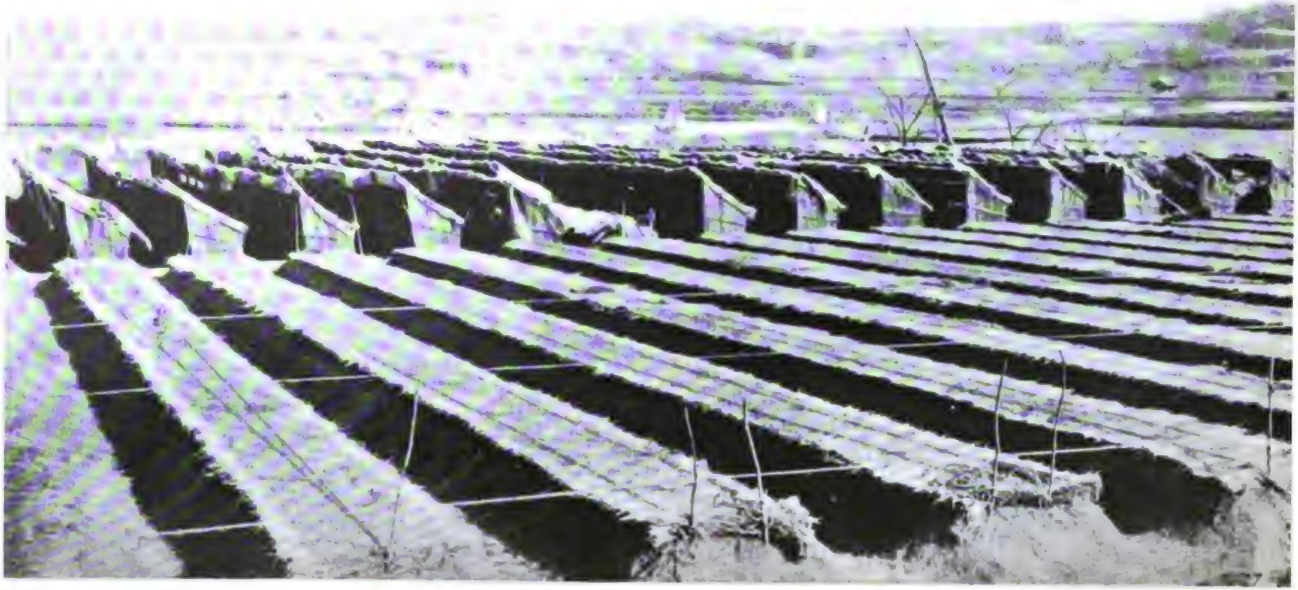
"Collected in the fall of 1912." (*Dana.*)

"Although closely allied to the common larch, this may be distinguished by the earlier growth in spring, the longer, more slender leaves, and in the more concave scales of the cone. It appears to have no value in this country [England]. Its early growth renders it very subject to injury by late spring frosts. I have only seen



A NEW PARAGUAYAN FRUIT (EUGENIA SP.) AT ALTADENA, CAL. (S. P. I. No. 36167.)

This fruit was introduced into Santa Barbara, Cal., as *Myrciaria edulis affinis* by that remarkable enthusiast for plant introduction, Dr. F. Franceschi, and has proved unusually frost resistant there. The bush has fruited at 3 years of age, and the fruit resembles the guava in flavor and has, according to Mr. Wilson Popenoe, a delightful aroma. (Photographed by W. Popenoe, November 5, 1914; P16229FS.)



BEDS OF GINSENG (S. P. I. NO. 36175) AT SONGDO, CHOSEN (KOREA).

The culture of this medicinal root, ginseng, which plays so important a rôle in Chinese medicine, is nowhere more extensive than it is around Songdo. Its cultivation in America has been repeatedly attempted, with varying degrees of success, and the description of the culture in Korea of the Korean variety should prove of value to American growers. (Photograph from Rev. C. H. Deal, Songdo, Chosen; P18829FS.)

plants a few feet high." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 7.*)

36164. Poupartia axillaris (Roxb.) King and Prain.

From Augusta, Ga. Presented by the P. J. Berckmans Co. Received September 18, 1913.

"Collected by Mr. E. H. Wilson in China and sent to the P. J. Berckmans Co., from whom this seed was obtained. (*Peter Bisset.*)

"This is a rather common tree at low altitudes in western Hupeh and in Szechwan and is chiefly confined to the valleys. It grows from 15 to 25 meters tall and the trunk is often a meter in diameter near the base. The branches are massive and form an oval or rounded head; the bark is gray, deeply fissured, and persistent; the leaves are deciduous. The flowers are polygamo-diœcious; the male and female flowers are borne in many-flowered panicles which spring from the axils of scales and also from the axils of the lower leaves. The hermaphrodite flowers are much larger than the unisexual flowers and are borne in short racemes which are commonly one flowered by abortion and never more than three or four flowered. The leafy shoots bearing panicles of unisexual flowers look very much like branches of *Rhus succedanea* Linnæus. The fruit is yellow, oval, from 2.5 to 3 centimeters long, rounded on the summit; it is eaten by the Chinese. The vernacular name of this tree is *Hsuan tsao.*" (*Plantae Wilsonianae, Part IV, p. 172.*)

36165. Paspalum bertonii Hackel.

From Puerto Bertoni, Paraguay. Presented by Dr. Moisés S. Bertoni, Estacion Agronomica.

"A densely cespitose perennial grass, growing among rocks and sand on the banks of the Parana River, near Puerto Bertoni and Salto Guaira. The species resembles *P. eucomum* and *P. guttatum*, but differs in its flat leaves, its 2-eared ligula, and very pointed spikelets." (*Hackel, in Fedde, Repertorium, vol. 10, p. 165, 1911.*)

36166. Diospyros texana Scheele. **Mexican persimmon.**

From San Antonio, Tex. Presented by Mr. R. E. Blair, of the Yuma Experiment Farm, Bard, Cal. Received September 16, 1913.

"Collected near San Antonio, Tex., August, 1912." (*Blair.*)

Distribution.—A shrub or small tree found in river valleys in Texas and the northern part of Mexico.

36167. Eugenia sp.

From Altadena, Cal. Presented by Mr. F. O. Popenoe. Received September 16, 1913.

This was received as *Myrciaria edulis* var. *affinis*, but does not agree with material of this species brought from Brazil, and seems rather to belong to the genus *Eugenia.*

"A shrub introduced from Paraguay by Dr. F. Franceschi, of Santa Barbara, Cal. Of open, rather wiry growth, with small elliptical to lanceolate leaves. At Altadena it withstood the cold weather of January, 1913, better than the Mexican avocado. The plant that produces these fruits is about 3 years old and is fruiting this season for the first time. The fruit is round, slightly less than an inch in diameter, and of a beautiful deep-orange color. The skin, though thin, is tough and not easily broken. Surrounding the one to four large seeds is a small quantity of soft pulp, very acid and somewhat resembling the guava in flavor. The aroma of the fruit is delightful." (*Wilson Popenoe.*)

For an illustration of this new Paraguayan fruit as grown in California, see Plate V.

36168. PARKINSONIA ACULEATA L. **Jerusalem thorn.**

From Buenos Aires, Argentina. Presented by Mr. H. M. Curran, forester. Received September 15, 1913.

"Small tree much used here as a hedge. Ornamental when grown as a tree." (*Curran.*)

"*P. aculeata*, called in Jamaica the Jerusalem thorn and in the French West Indies *genet épineux*, though originally a native of some part of the American continent, is now found in nearly all tropical countries, where, from its spiny nature, it is used for making hedges, while in Mexico the Indians employ it as a febrifuge and sudorific, and also as a remedy in epilepsy. It grows from 12 to 15 feet high and has sweet-smelling flowers and leaves with winged stalks and blunt leaflets, by which it is distinguished from the Cape of Good Hope species, which has round, unwinged stalks and sharp-pointed leaflets." (*A. Smith, in Lindley's Treasury of Botany.*)

36170. SWIETENIA MAHAGONI Jacq. **Mahogany.**

From La Cana, Noria, Sinaloa, Mexico. Presented by Don Nat O. y Osuna. Received June 14, 1913.

"*Venadillo* seed, which produces a tree of immense height and about 18 inches to 2 feet in diameter. The lumber from this tree is used for the manufacture of chairs, beds, and all kinds of furniture. It has a beautiful grain and is everlasting; polishes beautifully." (*Osuna.*)

36171 and 36172.

From San Ramon, Costa Rica. Presented by Mr. Frederick Hopkins, through Mr. G. Carlton Worthen, of the Department of Agriculture. Received June 6, 1913.

36171. ANNONA CHERIMOLA Miller. **Cherimoya.**

"Edible fruits." (*Hopkins.*)

36172. CARICA PAPAYA L. **Papaya.**

36173. CARICA PAPAYA L. **Papaya.**

From Pago Pago, Samoa. Presented by Commander C. D. Stearns, Governor of American Samoa. Received September 15, 1913.

36174. RHIZOPHORA CANDELARIA DC. **Mangrove.**

From Manila, Philippine Islands. Received from Maj. George P. Ahern, Director of Forestry, Department of Interior. Received September 12, 1913.

This shipment consisted of a Wardian case containing 200 plants of four species, as follows: Langarai (*Bruguiera parviflora*), bacauan (*Rhizophora candelaria*), pototan (*Bruguiera eriopetala*), and tabigi (*Xylocarpus obovatus*). The tags had in some way become detached in transit, making it impossible to determine the varieties, therefore they were given one S. P. I. number. Only 70 plants were alive and in fair condition.

36175. PANAX QUINQUEFOLIUM L. **Ginseng.**

(*Aralia quinquefolia* Decne. and Planch.)

From Songdo, Chosen (Korea). Presented by Rev. C. H. Deal, Anglo-Korean School, at the request of Mr. Noble, of the Northern Methodist Mission in Korea. Received September 19, 1913.

"This is, perhaps, the most famous section in the world for the cultivation and production of ginseng. A few years ago its cultivation dropped out, but now, if anything, it is being cultivated more widely than ever. These seeds are fresh and as yet are not thoroughly dried. As you know, when they are dry they are very hard, so hard that they must be soaked in water until thoroughly wet and planted where they will freeze, so as to burst open the shell.

"The largest roots of ginseng weigh about 160 grams. There seems to be but one variety, or if there are more, they are not recognized by the Korean farmers. When the roots are first dug they are all white, but when they are marketed there is a variety of appearances:

"*First*, white ginseng is the peeled and dried roots. This is used mostly by the Koreans and does not constitutute the first quality of roots.

"*Second*, red ginseng is the best and most expensive of the roots. The color is given by a thorough steaming, and it is sold chiefly to the Chinese.

"*Third*, root ginseng, or perhaps a better translation of the Chinese character would be rootlet ginseng, is used chiefly in the form of tea. As the name implies, it is composed of the dried rootlets only.

"*Fourth*, sweet ginseng is composed of the faulty roots of the first, second, and third years' growth. It is usually put up in the form of preserves.

"*Fifth*, ginseng sirup is a by-product produced by boiling down to a sirup the condensed steam which was used in coloring the red ginseng. This is a modern development, or possibly an innovation from America. This, it seems, is one of the great sources of profit in the ginseng business.

"When the ginseng comes up it has only one stem with 5 leaflets. No more leaflets come out the first season, but in the fall it puts out a stem and a bunch of blooms, ranging from 10 to 20. One or two seeds form on each bloom. The second year the plants are put out 10 leaflets are formed, the third year 15, and the fourth year 20, etc. One can know the age of the plant by counting the leaflets and dividing the total by 5.

"If the seeds are to be planted in the spring, the land must be plowed two or three times in the late summer and sprayed well with formalin. The soil should be thoroughly stirred and loosened up, so that the sun may penetrate it. The land must be plowed again in the spring and then worked up into beds 8 inches high, 3 or 4 feet wide, and as long as the field will permit. The beds are covered by a roof 3 or 4 feet high, made from rice or other straw, and should be screened in all around with coarse grass or sorghum. The roof need not be very heavy in the early spring, but in the hot summer time it must be thick enough to keep out much of the heat and all of the sunlight. The beds are edged with flat pieces of slate, to keep them in shape and also to prevent the expensive fertilizer from being wasted.

"The soil is prepared as follows: In the fall planting, disintegrated granite is dug up fresh from the ground, sifted, and the coarser gravel thrown away. The sifted granite is piled out where the air will penetrate it, and where freezing and other weather forces will act upon it. In the fall, leaves are piled up and allowed to rot over winter. In the spring they are dried and ground into powder and mixed half and half with the gravel and then spread over the beds, 5, 6, or 7 inches deep. This would mean about 4½ bushels of mixture to a plat containing 17 square feet.

"The seeds are planted here between the twentieth and the twenty-fifth of March. They are placed an inch apart each way in the bed and buried about three-eighths of an inch. A mixture of creek or river sand and leaf mold, as above described, two parts of sand to one of mold, is spread over the bed three-eighths of an inch deep and covered with straw. The bed is spread twice a day with water. The roof is not built over the bed until the plants starts to peep out. The straw is then removed and the roof above mentioned built over the bed, where it remains until the ginseng is gathered, seven years later. The most important thing is to keep out the rain and sunlight. The beds must be kept moist with pure well or spring water. About the twentieth of May the same mixture of creek sand and leaf mold is spread over the bed, this time from three-eighths to one-half inch deep. At this time plenty of water must be given it. There must not be the least sign of other plant life in the beds, which must be kept absolutely clean of grass, etc.

"After one year, about the 10th of April, the plants are dug up and only the healthiest plants reset in soil like the original setting. This time they are planted about 10 inches apart each way. The plants are placed in a horizontal position in the soil and covered to a depth of 2 inches. All but the most healthy plants are thrown away. The beds are covered with straw as before until the plants begin to come up; then the roof, as above explained, is built. The soil for this planting is prepared as before, which makes it impossible for the plants to be reset in the same beds, since they must be well plowed and aired out the previous summer before planting. The soil must be well loosened up around the plants three or four times a year.

"About May 20 the fertilizer is spread over the beds. This fertilizer can not be obtained in America, for it is composed of the mud walls of the old Korean houses, perhaps a hundred years old, and the soot and wood ashes scraped out of the flues of torn-down houses. This is not a flue as we have at home, but simply a smoke passage under the floor of the house, which is cleaned out once every decade by tearing up the floor or tearing down the house.

"Then a spread of acidum phosphoricum is given the beds. The flowers are not allowed to remain and produce seed, but are broken off before they bloom. Until the plants are 4 years old they are not allowed to produce seed. After 2 years the plants are again reset in new soil as before and then allowed to stay until they are 7 years old.

"Last year in Songdo, 13,000 Korean pounds, which are equal to about 17,500 of our pounds, valued at $40 gold per pound (Kr.) were produced. This was the red ginseng. There was also produced about 50,000 Korean pounds of the white ginseng. The production of ginseng is quite an industry in this old city." (*Extract from letter of Rev. C. H. Deal, of the Anglo-Korean School, Songdo, Chosen (Korea), February 5, 1914.*)

For an illustration of the method of bedding ginseng as practiced at Songdo, Chosen (Korea), see Plate VI.

36176 to 36182.

Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received July 7, 1913.

36176 and 36177. PISUM SATIVUM L. **Pea.**

"From Talcahuano, Chile. Selected from No. 238." (*Wight.*)

36178 to 36182. PHASEOLUS VULGARIS L. **Bean.**

From Talcahuano, Chile.

36178. Selected from other lots by Dr. D. N. Shoemaker.

36179. Mixed lot selected from other numbers by Dr. Shoemaker.

36180. Selected from other lots by Dr. Shoemaker.

36181. Selected from other lots by Dr. Shoemaker.

36182. Selected from other lots by Dr. Shoemaker.

36183. PHOENIX DACTYLIFERA × FARINIFERA. **Date.**

From Matania El Saff, Egypt. Presented by Mr. Alfred Bircher, Middle Egypt Botanic Gardens. Received September 18, 1913.

"It has a scanty pulp. The fruit ripens very early in summer, and the female tree, *Phoenix farinifera*, is only 5 years old." (*Bircher.*)

36184. SYZYGIUM OPERCULATUM (Roxb.) Niedenzu. **Rai-jaman.**

(*Eugenia operculata* Roxburgh.)

From Lahore, India. Presented by Mr. W. R. Mustoe, superintendent, Government Agricultural Horticultural Gardens. Received September 20, 1913.

"This is a very big-fruited variety of *E. jambolana*, commonly called the *Rai-jaman*. It has fruits as big as good-sized damsons, which are very nice if put between two plates with a pinch of salt and shaken a few times: this takes away the astringent taste from them. They come fairly true from seed." (*Mustoe.*)

Distribution.—A large tree found from the lower slopes of the Himalayas in India, eastward and southward to China and the islands of the Malay Archipelago.

36185 to 36195.

Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received July 7, 1913.

Quoted notes by Mr. Wight.

36185 to 36195. Zea mays L. **Corn.**

36185. "(No. 297.) Arequipa, Peru. White."

36186. "(No. 298.) Arequipa, Peru. Yellow."

36187. "(No. 299.) Cuzco, Peru. Striped red and yellow."

36188. "(No. 300.) Cuzco, Peru. White."

36189. "(No. 301.) Cuzco, Peru. Dark red."

36190. "(No. 327.) Peru. *Urpito*, favorite corn of the Indians for roasting."

36191. "(No. 328.) Cuzco, Peru. Yellow."

36192. "(No. 333.) Oruro, Bolivia. Dark brown."

36193. "(No. 367.) La Paz, Bolivia."

36194. "(No. 368.) La Paz, Bolivia. Gray."

36195. "(No. 360.) Cuzco, Peru. Dark red."

36196. AVENA SATIVA L. Oats.

From Tulun, Irkutsk, Russia. Presented by Mr. Victor Pissareff, director, Tulun Experiment Station. Received September 9, 1913.

"Local oats, cultivated at the station since 1908. Succeed better than all imported sorts. Seed of 1912 killed by frost on July 28 (old style)." (*Pissareff.*)

36197 to 36209. ZEA MAYS L. Corn.

Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received July 7, 1913.

Quoted notes by Mr. Wight.

36197. "(No. 378.) Cuzco, Peru. Red."

36198. "(No. 382.) Oruro, Bolivia. Strawberry."

36199. "(No. 384.) Oruro, Bolivia. Red."

36200. "(No. 392.) Oruro, Bolivia. Large white."

36201. "(No. 393.) Oruro, Bolivia. Red."

36202. "(No. 585.) Oruro, Bolivia. Speckled."

36203. "(No. 587.) Oruro, Bolivia. Light strawberry."

36204. "(No. 594.) Oruro, Bolivia. Black."

36205. "(No. 596.) Cuzco, Peru. Very dark red."

36206. "(No. 397.) Cuzco, Peru. White."

36207. "(No. 598.) Cuzco, Peru. Yellow."

36208. "(No. 599.) Cuzco, Peru. White."

36209. "(No. 600.) Cuzco, Peru. Yellowish brown."

36210. Eriobotrya japonica (Thunb.) Lindl. **Loquat.**

From Rome, Italy. Presented by Dr. Gustav Eisen, California Academy of Sciences, San Francisco, Cal. Received September 24, 1913.

"Apple loquat from Boscotrecase. It is very early, as it matures in Rome in May. It is only a week later than the pear loquat and must be classed as one of the very early desirable fruits." (*Eisen.*)

Cuttings.

36211 to 36253. Zea mays L. **Corn.**

Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received July 7, 1913.

Quoted notes by Mr. Wight.

36211. "(No. 601.) Cuzco, Peru. Pink."
36212. "(No. 602.) Cuzco, Peru. White."
36213. "(No. 603.) Cuzco, Peru. Light yellow."
36214. "(No. 604.) Cuczo, Peru. Red and yellow striped."
36215. "(No. 605.) Cuzco, Peru. Yellow."
36216. "(No. 606.) Cuzco, Peru. Yellow."
36217. "(No. 607.) Cuzco, Peru. Yellow with red stripes."
36218. "(No. 609.) Cuzco, Peru. Yellow."
36219. "(No. 610.) Cuzco, Peru. Striped."
36220. "(No. 611.) Cuzco, Peru. White."
36221. "(No. 612.) Cuzco, Peru. Yellowish brown."
36222. "(No. 613.) Cuzco, Peru. Dark red; grains tipped with yellow."
36223. "(No. 614.) Cuzco, Peru. Yellowish red."
36224. "(No. 615.) Cuzco, Peru. Bluish gray."
36225. "(No. 616.) Cuzco, Peru. Yellow."
36226. "(No. 617.) Cuzco, Peru. Light yellow."
36227. "(No. 618.) Cuzco, Peru. White."
36228. "(No. 621.) Cuzco, Peru. Yellow."
36229. "(No. 622.) Cuzco, Peru. Purple and white mottled."
36230. "(No. 623.) Cuzco, Peru. Striped."
36231. "(No. 624.) Cuzco, Peru. White with red stripes."
36232. "(No. 625.) Cuzco, Peru. Light yellow, striped with red."
36233. "(No. 626.) Cuzco, Peru. Light yellow."
36234. "(No. 627.) Cuzco, Peru. Brown."
36235. "(No. 628.) Cuzco, Peru. Yellow."
36236. "(No. 629.) Cuzco, Peru.
36237. "(No. 630.) Cuzco, Peru. Purple and white speckled.
36238. "(No. 631.) Cuzco, Peru. Reddish brown."
36239. "(No. 632.) Cuzco, Peru. Light yellow."
36240. "(No. 633.) Cuzco, Peru. Brownish yellow."
36241. "(No. 633a.) White."
36242. "(No. 634.) Cuzco, Peru. White."
36243. "(No. 635.) Cuzco, Peru. White."
36244. "(No. 636.) Cuzco, Peru. Red and yellow striped."

36211 to 36253—Continued.

36245. "(No. 637.) Cuzco, Peru. White and purple speckled."

36246. "(No. 638.) Yellow."

36247. "(No. 639.) Dark red."

36248. "(No. 640.) Pinkish white."

36249. "(No. 641.) Speckled, small grains."

36250. "(No. 642.) Brownish yellow."

36251. "(No. 332.) Sweet."

36252. "(No. 391.) Yellow."

36253. "(No. 584.) Large yellow."

36254. HOLMSKIOLDIA SANGUINEA Retzius.

From Seharunpur, India. Received from the Government Botanical Gardens, through Mr. Wilson Popenoe, of the Bureau of Plant Industry. Received May 7, 1913.

"A handsome shrub, producing brick-red flowers." (*Popenoe.*)

Distribution.—A straggling shrub found on the subtropical slopes of the Himalayas up to an elevation of 4,000 feet, in northern India.

"A nearly glabrous, large straggling shrub, 10 to 30 feet high. Leaves stalked, cordate, ovate, about 3 by 2 inches, toothed or entire. Flowers very conspicuous, scarlet tinged with orange, crowded in axillary, stalked cymes. Calyx colored like the corolla, funnellike, persistent." (*Gamble, Manual of Indian Timbers, and Collett, Flora Simlensis.*)

36255. CHLORIS PARAGUAIENSIS Steud. **Australian Rhodes grass.**

From Sydney, New South Wales. Purchased from Anderson & Co. Received September 20, 1913.

"This seed should be sown the same way as the ordinary Rhodes grass, in the spring or early autumn, spring preferably. In its earliest stages of growth it is stoloniferous, that is, it roots from the joints, and when growing vigorously reaches some 5 feet high, averaging 4 feet; each plant stools out and has twice the amount of hay yielded by the ordinary variety, *Chloris gayana*, and is much softer feed." (*Anderson & Co.*)

36256. ARTOCARPUS ODORATISSIMA Blanco. **Marang.**

From Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Division of Horticulture, Lamao Experiment Station. Received September 23, 1913.

"These seeds were collected in Zamboanga during my recent trip to Mindanao. This is my second opportunity to test the marang, and I have no hesitation to declare it one of the coming tropical fruits, even in its present undeveloped state. It is very sweet and rich in flavor, and has the unique quality of having a flesh that separates readily and absolutely from the seeds and the skin. As far as I have been able to ascertain, the marang occurs only on the south coast of Mindanao and in the Sulu Archipelago. On my return to Manila I met on the steamer a missionary who had lived in Borneo for three years, part of which time was spent in Sandakan; she had neither heard of nor seen the fruit before. The marang will probably not succeed except where the climate is warm and humid throughout the year and the atmosphere close and still." (*Wester.*)

"*Marang*, also known as *madang*. A medium-sized tree with large dark-green leaves, entire or more or less conspicuously trilobate, 45 to 60 centimeters long and 25 to 30 centimeters broad, similar in habit to the breadfruit, found in the south coast of

Mindanao and the Sulu Archipelago, and first described from Mindoro. The fruit is large, 16 centimeters long and 13 centimeters in equatorial diameter, roundish oblong, regular, thickly studded with soft, greenish yellow spines about 7 millimeters long on the outside; rind thick and fleshy; flesh white, sweet, rich, juicy, aromatic, and of good flavor, separated into segments of about the size of a grape clinging to the core, each segment containing a seed; seeds many, whitish, 8 by 15 millimeters, smooth, separating readily from the flesh. When the fruit is ripe, by passing a knife around and through the rind with a little care, the two halves separate from the flesh, leaving this like a bunch of grapes. Ripe fruits were obtained in August. The marang is far superior to its relatives, the jak and the ordinary breadfruit found in the Philippines, and already in its present form is a remarkably good and attractive fruit. The tree was noted by the writer in Zamboanga and Davao." (*Wester, The Philippine Agricultural Review, November, 1912.*)

36257. DAHLIA sp. **Mexican wild dahlia.**

From Contreras, Federal District of Mexico, Mexico. Presented by Mr. William Brockway, superintendent, Hotel Imperial Gardens. Received September 22, 1913.

"From information given me by Prof. Pringle, who collected extensively for many years in Mexico, I am led to believe that the wild dahlia growing on both sides of Ajusco Mountain along the line of the Cuernavaca Division of the Mexican National Railway is the variety from which the cultivated dahlia originated. On the east side of the mountain they are found at Kilos 37, 38, and 39, and on the west side, both above and below the station of El Parque, between Kilos 87 and 97. Elevation about 6,000 feet. During the dry season these plants die down, and they commence their growth again about June 1, flowering about the month of September, although I have several specimens growing in my garden that are now beginning to flower (July), having been irrigated a little. All the varieties I have noted here are single flowered and none inclined to the cactus type. I have found at least 20 different colors and note some tending to the collarette type; they are mostly self colors ranging from various shades of red to orange, lemon, violet, and white. Some varieties are of very robust growth, mostly growing to a straight single stalk, branching out on all sides exactly like a young specimen fruit tree. They are very floriferous, and I have often dug clumps of a mass of tubers that would weigh up to 10 pounds. Several of these varieties would prove of value on account of the size, strength, and beauty of the full-grown plant." (*Brockway.*)

36258. NYMPHAEA STUHLMANNII (Engl.) Schwfth. and Gilg. **Water lily.**

From German East Africa. Presented by the Usumbwa Company, Nyombe-Bulungwa, Port Tabora. Received September 24, 1913.

"Sepals yellowish green, petals bright sulphur yellow, stamens orange yellow, with sulphur-yellow anther. Stigma orange. Receptacle brown. Flowers 10 to 15 centimeters across, sweet scented ('duftet sehr aromatisch'). Sepals four, obovate, broadly rounded above, with numerous longitudinal veins, 8.3 centimeters long by 2.5 centimeters wide. Petals about 22, broadly obovate, with one to several longitudinal veins. Stamens about 125, stout and thick, all appendaged, the innermost very shortly so. Carpels about 23, stigma shallow, flat. Leaf orbicular ovate, entire, 21 centimeters wide by 25.5 centimeters long; sinus margins nearly straight, lobes diverging, obtuse; green on both sides; veins prominent; primary veins seven; principal area 7 centimeters long. Collected by Stuhlmann, No. 410, July 16, 1890, at 'Uniamweni, Gunda mkali, bei Bibisande,' Africa, altitude 1,200 meters in hb. Berlin." (*Henry S. Conard, A Monograph of the Genus Nymphaea.*)

BOTANICAL NOTE AND PUBLICATION OF A NEW NAME.

35674. **Achradelpha viridis (Pittier) O. F. Cook.**

(*Calocarpum viride*, Pittier, Contr. U. S. Nat. Herb., vol. 18, p. 84, 1914.)

A tree related to the sapote, but producing fruit of superior quality. It was described originally as *Calocarpum viride* Pittier. A larger quantity of seed of this species was secured afterward from Guatemala by Mr. O. F. Cook, who refers to this tree as *Achradelpha viridis* (S. P. I. Nos. 38478 to 38481, 38566, and 40906). The reason for changing the name is stated by Mr. Cook as follows:

"The injerto is undoubtedly a close relative of the true sapote of Mexico and Central America, which is the type of the genus Achradelpha. The generic name Calocarpum used by Pierre and other recent writers for the sapote is not considered available on account of its previous application to other plants."

INDEX OF COMMON AND SCIENTIFIC NAMES.

Abelmoschus mindanaensis, 35894.
Achradelpha mammosa, 35673.
    viridis, 35674.
Adzuki bean. See *Phaseolus angularis*.
Aextoxicon punctatum, 35988, 36123, 36148.
Allium cepa, 36011.
Alstroemeria spp., 35918, 35919.
Amygdalus persica, 36012, 36125 to 36127.
Anacolosa luzoniensis, 35893.
Annona cherimola, 35671, 36171.
Antidesma bunius, 36088.
Apium sp., 35920.
Apricot. See *Prunus armeniaca*.
Aralia quinquefolia. See *Panax quinquefolium*.
Araucaria araucana, 35921, 35922.
Areca sapida, 35888.
Artocarpus odoratissima, 36256.
Asparagus spp., 35976, 35977.
Atalantia racemosa, 36102.
Australian Rhodes grass. See *Chloris paraguaiensis*.
Avellano. See *Gevuina avellana*.
Avena sativa, 36196.
Avocado. See *Persea americana*.

Bamboo. See *Bambos* sp.
Bambos sp., 36131.
Barberry. See *Berberis* spp.
Barleria strigosa, 36028.
Barley. See *Hordeum vulgare*.
Bean. See *Phaseolus vulgaris*.
    broad. See *Vicia faba*.
Berberis darwinii, 35924.
    empetrifolia, 35923.
Bignai. See *Antidesma bunius*.
Bower of beauty. See *Tecoma jasminoides*.
Bramble. See *Rubus phoenicolasius*.
Brassica napus, 36087.
    pekinensis, 36054, 36113, 36114.
Buddleia albiflora, 36001.
Bunchosia costaricensis, 36101.
Bur clover. See *Medicago arabica*.
Buri palm. See *Corypha elata*.
Byrsonima sp., 35999.

Caesalpinia coriaria, 35896.
Cajuputi hypericifolia, 35886.
Calliandra haematocephala, 36023.
Calumpit. See *Terminalia edulis*.
Calydorea speciosa, 36134.
Canelo. See *Drimys winteri*.
Carica candamarcensis, 35925, 36069.
    papaya, 35668 to 35670, 36172, 36173.
Carrot. See *Daucus carota*.
Cassia beareana, 35910.
Castanea sp., 35917.
    mollissima, 35891.
Castilla nicoyensis, 35892.
Ceiba pentandra, 35907, 35908.
Celery, wild. See *Apium* sp.
Cereza. See *Bunchosia costaricensis*.
Champac. See *Michelia champaca*.
Chenopodium quinoa, 35978, 36006, 36007.
Cherimoya. See *Annona cherimola*.
Cherry. See *Prunus* spp.
Chestnut. See *Castanea* spp.
Chloris paraguaiensis, 36255.
Ciruelillo. See *Embothrium coccineum*.
Cissus striata, 35926, 35927.
Citron, sour. See *Citrus medica*.
Citrus spp., 35690, 35696 to 35698.
    aurantifolia, 35695.
    grandis, 35692, 35693.
    limonia, 35694.
    medica, 35699.
    nobilis deliciosa, 35691.
    sinensis, 35700.
Colletia sp., 35951.
Colocasia spp., 36010, 36057, 36121.
Cordia sebestena, 36091.
Corn. See *Zea mays*.
Corypha elata, 35689.
Cotoneaster spp., 35928 to 35932.
Coumarouna odorata, 35904.
Cowpea. See *Vigna sinensis*.
Crane's-bill. See *Erodium* sp.
Cucumis melo, 35933 to 35942, 35963.
Cucurbita spp., 35943, 35944.

Dahlia sp., 36257.
Date. See *Phoenix dactylifera*.

Daucus carota, 36156.
Desmodium hirtum. See *Meibomia hirta*.
Diospyros texana, 36166.
Dipteryx odorata. See *Coumarouna odorata*.
Divi-divi. See *Caesalpinia coriaria*.
Drimys winteri, 35986, 36000.
Duku. See *Lansium domesticum*.

Ebony-heart tree. See *Elaeocarpus bancroftii*.
Echium fastuosum, 35672.
Elaeocarpus bancroftii, 36046.
Elephant grass. See *Pennisetum purpureum*.
Embothrium coccineum, 35946, 35947.
Enargea spp., 35948 to 35950.
Eriobotrya japonica, 36013, 36210.
Eriodendron anfractuosum. See *Ceiba pentandra*.
Erodium sp., 36117.
Erythrina sp., 36019.
  arborescens, 36009.
Escallonia pulverulenta, 36122.
Eugenia sp., 36167.
  eucalyptoides, 36043.
  operculata. See *Syzygium operculatum*.
Excoecaria bicolor, 36022.

Ficus saemocarpa, 36020.
Field pea. See *Pisum arvense*.
Fragaria chiloensis, 35953.
Fuchsia macrostema, 35952.

Galo. See *Anacolosa luzoniensis*.
Garcinia livingstonei, 36021.
  mangostana, 36095.
Gevuina avellana, 35954, 35955.
Ginseng. See *Panax quinquefolium*.
Gladiolus sp., 35900.
Glycine hispida. See *Soja max*.
Gordura grass. See *Melinis minutiflora*.
Granadilla. See *Passiflora ligularis*.
Grape. See *Vitis vinifera*.
Grass, gordura. See *Melinis minutiflora*.
  Natal. See *Tricholaena rosea*.
Greigia sphacelata, 35956.
Guava. See *Psidium* spp.
Gum rose-apple. See *Eugenia eucalyptoides*.
Gunnera chilensis, 35957, 35958.

Haemanthus fascinator, 35702.
Heimia myrtifolia, 36025.
Heliophila scandens, 35887.
Hesperis sp., 36119.
Hibiscus schizopetalus, 36027.
Hog-plum. See *Spondias lutea*.
Hillock tree. See *Cajuputi hypericifolia*.
Holcus sorghum, 36074 to 36077.
Holmskioldia sanguinea, 36254.
Hordeum vulgare, 36005.
Hymenodictyon excelsum, 36044.

Ipomoea batatas, 35878, 35879, 36056.
Ixerba brexioides, 35889.

Jerusalem thorn. See *Parkinsonia aculeata*.
Juglans regia sinensis, 36082.

Kaka. See *Pistacia integerrima*.
Kapok. See *Ceiba pentandra*.

Lansium domesticum, 35688, 35885, 35906, 36061.
Lapageria rosea, 35959.
Larch, Siberian. See *Larix sibirica*.
Lardizabala biternata, 35960.
Larix sibirica, 36163.
Lathyrus spp., 35961, 35962, 35964, 35965, 36105.
  sativus, 35966.
Laurelia sempervirens, 35967.
Lemon. See *Citrus limonia*.
Leucadendron repens, 36062.
Lime. See *Citrus aurantifolia*.
Lingue. See *Persea lingue*.
Litchi. See *Litchi chinensis*.
Litchi chinensis, 36042, 36066.
Lithrea caustica, 35968.
Loquat. See *Eriobotrya japonica*.
Lucuma sp., 36155.
  mammosa. See *Achradelpha mammosa*.
Lupinus arboreus, 35969.

Mahogany. See *Swietenia mahagoni*.
Mammea americana, 35909.
Mammee apple. See *Mammea americana*
Mangifera indica, 35903, 36002, 36029 to 36039, 36052, 36053, 36070.
Mango. See *Mangifera indica*.
Mangosteen. See *Garcinia mangostana*.
Mangrove. See *Rhizophora conjugata*.
Marang. See *Artocarpus odoratissima*.
Medicago arabica, 36136.
  sativa varia, 36089.

Meibomia hirta, 36060.
Melaleuca hypericifolia. See *Cajuputi hypericifolia*.
Melinis minutiflora, 36051.
Melluco. See *Ullucus tuberosus*.
Michai. See *Berberis darwinii*.
Michelia champaca, 36090.
Mikania sp., 35970.
Mucuna stans. See *Stizolobium stans*.
Muskmelon. See *Cucumis melo*.
Murta. See *Ugni molinae*.
Mutisia sp., 35972.
  latifolia, 35971.
Myrica nagi. See *Myrica rubra*.
  rubra, 36014.
Myristica fragrans, 35905.
Myrtus molinae. See *Ugni molinae*.

Natal grass. See *Tricholaena rosea*.
Nephelium litchi. See *Litchi chinensis*.
Nikau palm. See *Areca sapida*.
Nipa palm. See *Nypa fruticans*.
Notospartium carmichaeliae, 36067.
Nutmeg. See *Myristica fragrans*.
Nymphaea stuhlmannii, 36258.
Nypa fruticans, 36058.

Oats. See *Avena sativa*.
Oca. See *Oxalis tuberosa*.
Olea verrucosa, 36059.
Olive. See *Olea verrucosa*.
Onion. See *Allium cepa*.
Opuntia sp., 35685.
Orange. See *Citrus sinensis* and *Citrus nobilis deliciosa*.
Oxalis tuberosa, 35869 to 35874, 35876, 35880 to 35883.

Pai ts'ai. See *Brassica pekinensis*.
Palm, nikau. See *Areca sapida*.
  nipa. See *Nypa fruticans*.
Palo muerto. See *Aextoxicon punctatum*.
Panax quinquefolium, 36175.
Panicum miliaceum, 36081.
  teneriffae. See *Tricholaena rosea*.
Papaya. See *Carica papaya*.
  mountain. See *Carica candamarcensis*.
Parkinsonia aculeata, 36168.
Paspalum bertonii, 36165.
Passiflora ligularis, 36047.
Pea. See *Pisum* spp.
Peach. See *Amygdalus persica*.
Pehuen. See *Araucaria araucana*.
Pelu. See *Sophora tetraptera*.
Pennisetum purpureum, 36103.
Pentapetes phoenicea, 36017.
Pepino. See *Solanum muricatum*.
Pernettya mucronata, 35990, 35997, 36139.
Persea americana, 35675, 35676, 35875, 35877.
  gratissima. See *Persea americana*.
  lingue, 35974, 35975.
Persimmon, Mexican. See *Diospyros texana*.
Petrea volubilis, 36024.
Phaseolus angularis, 36080, 36084, 36085.
  vulgaris, 35984, 35985, 35993, 36178 to 36182.
Phoenix dactylifera, 35911, 36096.
  × *farinifera*, 36183.
Phyllanthus nivosus, 36018.
Pine. See *Pinus bungeana*.
Pinus bungeana, 35916.
Pistacia integerrima, 36065.
Pisum arvense, 35996, 36176.
  sativum, 35912 to 35915, 36177.
Pittosporum dallii, 36068.
Plum. See *Prunus triloba*.
Pomegranate. See *Punica granatum*.
Pomelo. See *Citrus grandis*.
Potato. See *Solanum* spp.
  sweet. See *Ipomoea batatas*.
Poupartia axillaris, 36164.
Prickly pear. See *Opuntia* sp.
Pride of Madeira. See *Echium fastuosum*.
Proso. See *Panicum miliaceum*.
Protea mellifera. See *Leucadendron repens*.
Prunus spp., 36107, 36108.
  armeniaca, 35701, 36015.
  persica. See *Amygdalus persica*.
  tomentosa, 36086, 36109 to 36111.
  triloba, 36112.
Psidium spp., 35973, 35979, 36072, 36157.
  guajava, 36063.
Punica granatum, 35667.

Quinoa. See *Chenopodium quinoa*.

Rai-jaman. See *Syzygium operculatum*.
Radish. See *Raphanus sativus*.
Rape. See *Brassica napus*.
Raphanus sativus, 35890, 36115.
Rhizophora candelaria, 36174.
Rhopalostylis sapida. See *Areca sapida*.
Rivina laevis, 36045.
Rosa sp., 35989.
Rose. See *Rosa* sp.
Rubber tree, Central American. See *Castilla nicoyensis*.

Rubus sp., 36064.
  phoenicolasius, 36071.
Rye. See *Secale cereale*.

Saccharum officinarum, 36097.
Sand lucern. See *Medicago sativa varia*.
Sapote. See *Achradelpha* spp. and *Lucuma* sp.
Saraca indica, 36026, 36092.
Scirpus sp., 36050.
Secale cereale, 36055.
Sesame. See *Sesamum orientale*.
Sesamum indicum. See *Sesamum orientale*.
  orientale, 35897.
Soja max, 36079, 36116.
Solanum spp., 35686, 35687, 35899, 36093, 36104.
  columbianum, 36129, 36130.
  muricatum, 36048.
  tuberosum, 35703 to 35723, 35725, 35726, 35728 to 35730, 35732 to 35739, 35741 to 35752, 35754 to 35783, 35785 to 35793, 35795, 35797 to 35824, 35829 to 35868.
Sophora tetraptera, 36135, 36145, 36153.
Sorghum vulgare. See *Holcus sorghum*.
Soy bean. See *Soja max*.
Spondias cytherea, 35884.
  dulcis. See *Spondias cytherea*.
  lutea, 36154.
Squash. See *Cucurbita* spp.
Stizolobium spp., 35677, 35679 to 35682.
  aterrimum, 35683.
  capitatum, 35684.
  cinereum, 35678.
  stans, 35901.
Strawberry. See *Fragaria chiloensis*.
Sugar bush. See *Leucadendron repens*.
  cane. See *Saccharum officinarum*.
Swartzia langsdorffii, 35898.
Sweet pepino. See *Solanum muricatum*.
  potato. See *Ipomoea batatas*.
Swietenia mahagoni, 36170.
Syzygium operculatum, 36184.

Taro. See *Colocasia* sp.
Tawari. See *Ixerba brexioides*.
Tecoma jasminoides, 35895.
Terminalia edulis, 36016.
Tigridia sp., 36159.
Tipa. See *Tipuana tipu*.
Tipuana speciosa. See *Tipuana tipu*.
  tipu, 36094.
Tonka bean. See *Coumarouna odorata*.
Tricholaena rosea, 36049.
Trichosanthes kirilowii, 36118.
Tricondylus ferrugineus, 35945.
Triticum spp., 36142, 36143.
  aestivum, 35980 to 35982, 36004, 36073, 36144.
  durum, 36003.
  vulgare. See *Triticum aestivum*.
Tropaeolum speciosum, 36128.
  tuberosum, 35983.

Ugni molinae, 35992, 36132, 36133, 36140, 36150, 36151.
Ullucus tuberosus, 35724, 35727, 35731, 35740, 35753, 35784, 35794, 35796, 35825 to 35828.
Undetermined, 35987, 35991, 35994, 36106, 36124, 36137, 36138, 36141, 36146, 36147, 36149, 36152.

Vicia sp., 35995.
  faba, 36008.
  villosa, 36100.
Vigna sinensis, 36078, 36083, 36160 to 36162.
Vitis striata. See *Cissus striata*.
  vinifera, 36040, 36041.

Walnut. See *Juglans regia sinensis*.
Water lily. See *Nymphaea stuhlmannii*.
We fruit. See *Spondias cytherea*.
Wheat. See *Triticum* spp.

Zea mays, 35998, 36120, 36185 to 36195, 36197 to 36209, 36211 to 36253.
Zephyranthes sp., 36158.

○

Issued March 25, 1916.

U. S. DEPARTMENT OF AGRICULTURE.
BUREAU OF PLANT INDUSTRY.
WILLIAM A. TAYLOR, *Chief of Bureau.*

INVENTORY
OF
SEEDS AND PLANTS IMPORTED
BY THE
OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM OCTOBER 1 TO DECEMBER 31, 1913.

(No. 37; Nos. 36259 to 36936.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1916.

BUREAU OF PLANT INDUSTRY.

Chief of Bureau, WILLIAM A. TAYLOR.
Assistant Chief of Bureau, KARL F. KELLERMAN.
Officer in Charge of Publications, J. E. ROCKWELL.
Chief Clerk, JAMES E. JONES.

FOREIGN SEED AND PLANT INTRODUCTION.

SCIENTIFIC STAFF.

David Fairchild, *Agricultural Explorer in Charge.*

P. H. Dorsett, *Plant Introducer, in Charge of Plant Introduction Field Stations.*
Peter Bisset, *Plant Introducer, in Charge of Foreign Plant Distribution.*
Frank N. Meyer and Wilson Popenoe, *Agricultural Explorers.*
H. C. Skeels, S. C. Stuntz, and R. A. Young, *Botanical Assistants.*
Nathan Menderson and Glen P. Van Eseltine, *Assistants.*
Robert L. Beagles, *Superintendent, Plant Introduction Field Station, Chico, Cal.*
Edward Simmonds, *Superintendent, Subtropical Plant Introduction Field Station, Miami, Fla.*
John M. Rankin, *Superintendent, Yarrow Plant Introduction Field Station, Rockville, Md.*
E. R. Johnston, *In Charge, Plant Introduction Field Station, Brooksville, Fla.*
Edward Goucher and H. Klopfer, *Plant Propagators.*
Collaborators: Aaron Aaronsohn, *Director, Jewish Agricultural Experimental Station, Haifa, Palestine;* Thomas W. Brown, *Gizeh, Cairo, Egypt;* H. M. Curran, *Bahia, Brazil;* Dr. Gustav Eisen, *California Academy of Sciences, San Francisco, Cal.;* E. C. Green, *Serviço do Algodao, Rio de Janeiro, Brazil;* A. C. Hartless, *Seharunpur Botanic Gardens, Seharunpur, India;* Barbour Lathrop, *Chicago, Ill.;* William S. Lyon, *Gardens of Nagtajan, Manila, P. I.;* Miss Eliza R. Scidmore, *Yokohama, Japan;* Charles Simpson, *Little River, Fla.;* Dr. L. Trabut, *Director, Service Botanique, Algiers, Algeria;* E. H. Wilson, *Arnold Arboretum, Jamaica Plain, Mass.*

CONTENTS.

Page.
Introductory statement 5
Inventory 9
Index of common and scientific names 87

ILLUSTRATIONS.

Page.
Plate I. Fruiting branch of the rollinia (*Rollinia orthopetala* A. DC.). (S. P. I. No. 36561.) 32
II. The tacaco, a Costa Rican vegetable (*Polakowskia tacaco* Pittier) 32
III. Fruit and leaves of the white sapote (*Casimiroa edulis* La Llave) 36
IV. The Rosa mango of Bahia, Brazil. (S. P. I. Nos. 36688 and 36841.) .. 36
V. An old navel-orange tree in an orchard at Bahia, Brazil 50
VI. Fruit of the Mu-yu, the south Chinese wood-oil tree (*Aleurites montana* (Lour.) Wils.). (S. P. I. No. 36897.) 50

INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM OCTOBER 1 TO DECEMBER 31, 1913 (NO. 37: NOS. 36259 TO 36936).

INTRODUCTORY STATEMENT.

This inventory records, among other plant material imported, the collections made by three separate expeditions which were sent out by this office to foreign countries.

An expedition composed of Mr. P. H. Dorsett, of this office, Mr. A. D. Shamel, physiologist, of the Office of Horticultural and Pomological Investigations, and Mr. Wilson Popenoe, of this office, was, during the time covered by this inventory, exploring in southern Brazil. This expedition left Washington on October 4, 1913, and made a careful survey of the navel-orange region around Bahia and also a study of orange growing around Rio de Janeiro. Its object was to find, if possible, the origin of the Bahia navel orange and to discover strains of this remarkable orange which might prove more productive or better in other respects than varieties which have originated in California from the cuttings introduced into North America in 1870. In addition to securing bud wood of promising strains of this orange which have originated in Bahia through bud variation, the expedition secured the stocks (laranja da terra, S. P. I. No. 36636) upon which the navel orange is grown in its own home. Strong evidence was also found that the Bahia navel originated, probably in Bahia itself, as a bud sport from the Selecta orange, which has been grown there since the earliest days of orange culture in Brazil. Shipments of the fruit of the Bahia orange were successfully made, and orange specialists were given an opportunity to compare the Bahia fruit with the best California-grown navels. The former are characterized by their light greenish yellow color and milder acidity. They are sweeter and perhaps juicier, but lack sprightliness. They might meet with favor among those who prefer a sweet orange, but on account of their paler color would not attract favorable attention in our markets. Whether the new and vigorous Bahia strains of the navel orange introduced (such as S. P. I. Nos. 36689 and 36691) will fruit in California over a longer period of the

---

NOTE.—This bulletin is a record of new or little-known seeds or plants procured mostly from abroad. It is intended for distribution to agricultural experiment stations and the more important private cooperators.

year or prove otherwise more valuable will require several years to determine, but it seems probable that out of these new importations new and valuable strains will come.

As further results of this Brazilian expedition covered by this inventory may be mentioned the discovery of the Rosa mango at Rio de Janeiro, the showiest and one of the best mangos in that region (S. P. I. Nos. 36688 and 36841, Pl. IV), and the interesting fruit known as the jaboticaba. This latter, curiously enough, although one of the favorite fruits of the Brazilians, appears to have attracted little or no attention in other parts of the world, notwithstanding its delicious character and the remarkable way in which the fruits are borne on the trunk and limbs of the tree. (S. P. I. Nos. 36702 and 36888. Reproductions from photographs appeared in "Plant Immigrants," No. 92, December, 1913.)

Prof. S. C. Mason, of the Office of Crop Physiology and Breeding Investigations, prosecuted an extended study of the date-palm varieties of Egypt and Nubia, visiting the Oases of Dakhleh and Khargeh, where he established the identity of the long-sought "Wahi" with the Saidy, the choice export date of the Libyan Oases. A visit to Merowe, capital of the Province of Dongola, Sudan, was a very satisfactory and profitable trip. Through the unusual courtesies extended to him by Governor Jackson and the British officials generally, in Egypt, he secured as gifts from the important sheiks to the American Government, or by purchase, date offshoots of rare and valuable varieties. The Gondeila (S. P. I. No. 36827), one of the choicest dry dates; the Bentamoda (S. P. I. No. 36818), which Prof. Mason thinks will rank with the Deglet Noor and Menakher in quality; the great staple food date Barakawi (S. P. I. No. 36826), a variety as hard as bone but softening quickly in water; and the Kulma (S. P. I. No. 36828), which reminds one of the Moroccan variety, the Tafilelt, are among those described in this inventory.

In the governor's garden at Merowe Prof. Mason discovered a subtropical plant, *Dodonaea viscosa* (S. P. I. No. 36813), which will be tested in Florida and California as a new hedge plant.

The collections of Mr. Frank N. Meyer, agricultural explorer of this office, during the three months covered by this inventory, were for the most part made in the Chihli Province of China. They include large-fruited varieties of the Chinese walnut (S. P. I. Nos. 36662 and 36663), suited, he thinks, for the lower Rocky Mountain region; a species of Chinese chestnut, *Castanea mollissima* (S. P. I. No. 36666), which, while it does not form a large tree, bears excellent nuts and is seemingly more resistant there to the bark disease (*Endothia parasitica*) than our American chestnut is here; a wild hazelnut of good quality (S. P. I. No. 36726), occurring at an elevation of 5,000 to 7,000 feet, for trial in cool regions in America and for breeding purposes; an edible wild grape, *Vitis amurensis* (S. P. I. No. 36753), from the Little Wu Tai Mountains, which appears not yet to have been hybridized with American or European grapes; an unusually vigorous form of wild peach, said to be a hybrid (S. P. I. No. 36665); three dwarf flint varieties of maize, ripening in 8 to 10 weeks (S. P. I. Nos. 36667 to 36669); dwarf sorghum, growing not over 3 or 4 feet high, for short-season regions (S. P. I. Nos. 36670 to 36672); three new wild roses (S. P. I. Nos. 36857 to 36859) from the Little Wu Tai Mountains, for the use of American rose breeders; three varieties of Chinese jujubes of good quality (S. P. I. Nos. 36852 to 36854); four species of wild asparagus, one of which produces edible shoots (S. P. I. Nos. 36766 to 36769); a variety of the kohl-rabi, which weighs as much as 25 pounds (S. P. I. No. 36770); a variety of the plum species, *Prunus salicina* (S. P. I. No. 36804), which produces a fruit said to be the size of an apple, suited, according to Mr. Meyer, to the cooler sections of the United States; a biennial species of Artemisia (S. P. I. No. 36797), which the Chinese use as a stock upon which to graft chrysanthemums, suggested as of value in the North where the nights are too cool and the summers too short to raise chrysanthemums out of doors; and from the Little Wu Tai Mountains 39 species of shrubs and ornamental plants (S. P. I. Nos. 36726 to 36764), many of which will doubtless be of value around the farm homes and in the city dooryards of the Northwest.

Through the constantly growing circle of foreign and domestic friends of plant introduction the following important importations have been made:

A variety of Mexican avocado, to which the writer's attention was directed, found by Postmaster General Burleson growing in the little Mexican village of Lagas, at 5,000 feet altitude (S. P. I. No. 36687); a collection of spring and winter wheats from Turkestan (S. P. I. Nos. 36498 to 36527), sent by Dr. Richard Schroeder, who believes they should do especially well in California and Utah, where summer rains are rare; four varieties of the papaya (S. P. I. Nos. 36275 to 36278) from Minas Geraes, Brazil, where a single seedling produced by actual count 200 fruits in 30 months; four independent shipments of Korean ginseng seed (S. P. I. Nos. 36282, 36596, 36716, and 36900); the Quina de Pernambuca, a small yellow-flowered tree which will stand light frosts and which is used like cinchona as a medicinal plant (S. P. I. No. 36661); the ilama, a red-fleshed anona from Tlatlaya, Mexico (S. P. I. No. 36632); a collection of soy, mung, and adzuki beans from Harbin, Manchuria (S. P. I. Nos. 36914 to 36923); a collection of sorghum varieties from German East Africa (S. P. I. Nos. 36610 to 36616); a barberry with edible fruit from the foothills of the Cordilleras of Argentina (S. P. I. No. 36626); a yellow Ussurian plum (S. P. I. No. 36607), which will probably prove hardy in the Northwest and which, because of its fine characteristic flavor, will be of use in hybridization experiments in that region; two Guatemalan varieties of avocado, originating from seed introduced into Hawaii many years ago by Admiral Beardsley (S. P. I. Nos. 36603 and 36604); seeds of *Prunus salicifolia* (S. P. I. No. 36371), a wild species which, according to Mr. W. F. Wight, is considered promising in Peru as a stock for the sweet cherry; the Shalil, probably a hard-fleshed peach, from the Kurram Valley in the Northwest Frontier Province, India (S. P. I. No. 36485); the madronho tree of the Canary Islands, a species which is gradually becoming rare, but which as a shade tree in Naples is strikingly beautiful (S. P. I. No. 36529); the Mu-yu, a south Chinese species of wood-oil tree, *Aleurites montana* (S. P. I. No. 36897), from Hongkong, of special interest because a larger proportion of its flowers are reported to be fertile than is the case in the central Chinese species which is now established in this country; a collection of Chinese corn (S. P. I. Nos. 36889 to 36895) made by Dr. Yamei Kin in the Chihli Province; nuts of the palm *Bactris utilis* (S. P. I. No. 36573), which when cooked have much the taste of potatoes and form one of the principal foods of the Indians of Costa Rica around San Jose and Cartago; the white sapote tree, *Casimiroa edulis* (S. P. I. No. 36602, Pl. III), from Sierra Madre, Cal., where the severe frost of 1913 caught only a few of the blossoms; a near relative of the chayote vine, *Polakowskia tacaco* (S. P. I. No. 36592, Pl. II), which forms one of the primitive foods of the Indians of Costa Rica and has been incorporated by the Spanish Costa Ricans in their menu; a perennial rice from Senegal, West Africa, discovered recently by M. Ammann, of the Jardin Colonial at Nogent sur Marne, France (S. P. I. No. 36533); a collection of strains of alfalfa, gathered together at Poona, India, from various parts of British India (S. P. I. Nos. 36551 to 36560); the fruit tree *Rollinia orthopetala*, which grows on soil which is often flooded for a considerable period of time at Para, at the mouth of the Amazon, and which produces a fruit similar to the cherimoya (S. P. I. No. 36561, Pl. I); and a hybrid of superior excellence between the cherimoya and the sugar-apple, produced by Mr. Edward Simmonds at the Miami Field Station (S. P. I. No. 36562).

The manuscript of this inventory has been prepared by Miss May Riley, the botanical determinations of seeds introduced have been made and the notes on geographic distribution compiled by Mr. H. C. Skeels, and the descriptive and botanical notes arranged by Mr. S. C. Stuntz, who has also had general supervision of this inventory, as of all the publications of this office.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., October 4, 1915.

INVENTORY.

36259. SCHINUS TEREBINTHIFOLIUS Raddi.

Grown at the Plant Introduction Field Station, Miami, Fla., under Station No. 115, from seed received from the Hawaii Agricultural Experiment Station, through Mr. P. J. Wester, in 1909.

Medium-sized, ornamental, evergreen anacardiaceous tree, native of Brazil, with very striking foliage, highly prized for avenue and lawn planting in mild-wintered regions. Similar to *S. molle*, but with stiffer branches and leaves larger and darker green.

Plants.

36260. KARATAS PLUMIERI Morr.

From Caracas, Venezuela. Collected by Mr. H. Pittier, of the Bureau of Plant Industry. Received August 14, 1913.

"One of the peculiar bromeliaceous fruits common on the market at Caracas during the months from January to April is the *curujujúl*, said to proceed from the above-named species. It is a slender pod, in shape somewhat like a very young banana finger and of a pale greenish yellow color. Its thin skin contains a translucent fluid of sirupy consistency and very sweet in which are embedded the numerous black seeds. The *curujujúl* is very much relished on account of its refreshing qualities and its delicate perfume, being either sucked offhand or served in the form of sherbet. It is also used in the preparation of a fine preserve. This plant grows wild in the lower belt of Venezuela; it is also planted at times in hedges. As it is, the fruit is a valuable addition to the Venezuelan fruit market, and it could very likely be improved by cultivation. The same plant is reported from Colombia, Central America, and Mexico. I had previously partaken of the fruits in Nicoya, Costa Rica, where the plant is known as *piñuela de garrobo* and in Chepo, Panama, where it is called *piro*, but the fruits were much smaller and of a very inferior quality. These may have belonged to distinct species. The fruits of the Mexican *piñuela* as sold cooked on the market at Tehuantepec are smaller, according to a natural-size picture taken by Messrs. G. N. Collins and C. B. Doyle (No. 9513)." (*Pittier.*)

36261. LILIUM LONGIFLORUM Thunberg. **Harris's lily.**

From Philadelphia, Pa. Presented by Mr. William K. Harris. Received October 3, 1913.

"Var. *eximium*. Bulbs raised from the original stock of the well-known *harrisii* Easter lily. To be grown to produce seed for the experimental work of Bureau officials." (*Bisset.*)

Bulbs.

36262. CARICA PAPAYA L. **Papaya.**

From Buenos Aires, Argentina. Presented by Mr. H. M. Curran. Received September 29, 1913.

36263. PISTACIA spp. **Pistache.**

From Fresno, Cal. Collected at Roeding Park, September 25, 1913, by Mr. J. E. Morrow, for propagation at the Plant Introduction Field Station, Chico, Cal.

Seeds from trees numbered 1 to 24. To be grown for stocks only.

Trees 1 to 24 proved to be a mixture of species of Pistacia, probably including *P. mutica*, *P. vera*, and *P. terebinthus*, all of these species having been sent to Roeding Park.

36264. SCHINOPSIS LORENTZII (Griseb.) Engler. **Quebracho.**

From Buenos Aires, Argentina. Presented by Dr. Carlos Thays, Director of the Botanic Garden. Received October 2, 1913.

See S. P. I. No. 34016 for previous introduction.

For a full discussion of the economic value of this anacardiaceous tree, see "Quebracho wood and its substitutes," by Clayton D. Mell and Warren D. Brush, Forest Service Circular 202, 1912.

36265 and 36266. CITRUS SINENSIS (L.) Osbeck. **Orange.**

From Guatemala. Presented by Mr. S. Billow, Guatemala City. Received October 2, 1913.

36265. "An orange slightly acid in taste; very juicy; 23 cm. in circumference with a rind 3 mm. in thickness; 4 or 5 will weigh a pound. Grown at Escuintla, 1,111 feet above sea level. The average annual rainfall is 125 inches; temperature from 60° to 95° F." (*Billow.*)

Seeds.

36266. "An orange very sweet and juicy; 26 cm. in circumference with a rind 4 mm. in thickness; 4 or 5 will weigh a pound. Grown at Moran, 3,959 feet above sea level. The average annual rainfall is 60 inches; temperature 60° to 90° F." (*Billow.*)

Seeds.

36267 to 36269. ZEA MAYS L. **Corn.**

From Cuzco, Peru. Presented by Mr. F. A. Peralta, at the request of Mr. W. F. Wight, of the Bureau of Plant Industry. Received August 5, 1913.

Quoted notes by Mr. W. W. Tracy, who tested the varieties.

36267. "But five plants germinated, all but one of which died without coming into tassel, that one not maturing fruit. The plant was notably deep rooted."

36268. "Six plants germinated, all smaller and weaker than the preceding; no plants tasseled. They were very deep rooted, with a narrow, hard leaf. These two might develop into strains adapted to dry lands and high temperatures. They seem to suffer from cold and wet."

36269. (No report.)

36270. PERSEA AMERICANA Miller. **Avocado.**

(*P. gratissima* Gaertn.)

From Miami, Fla. From seedlings sent from Washington to the Plant Introduction Field Station, Miami, Fla., and grown there under Garden No. 1247. Received September 10, 1913.

"Oblong oval, slightly oblique in shape; medium large, 5 inches long, 3¾ inches wide; weight 24 ounces; surface fairly smooth; yellowish green, almost yellow at base, numerous large yellow dots; meat deep yellow, light green near the skin, three-fourths to 1 inch thick, of melting, buttery texture and rich, nutty flavor; quality good to very good; seeds medium small, oblate, flattened on sides, and slightly rough on the surface." (*Wilson Popenoe.*)

36271. SOLANUM ACULEATISSIMUM Jacquin.

From Caravellas, Brazil. Presented by Mr. Fred Birch. Received October 9, 1913.

"Seeds of the sweet hollow tomato; plant 18 inches to 2 feet high, forming a branched bush exceedingly spiny; leaf about the size of a medium maple leaf but shaped like those of the ordinary tomato; skin of fruit tough, scarlet in color; flesh about three-sixteenths to one-fourth inch thick, white, granular, soft, and sweet; the seeds grow in a loose, dry cluster in the center. Plants grown in the richest soil are less spiny than those growing on the dry hillside." (*Birch.*)

Under the name *arrebenta-cavallos*, M. Pio Corrêa describes this plant as being "used for cutaneous affections and in mesenteric tuberculosis." He says that it is poisonous.

36272. EUGENIA VENTENATII Bentham.

Drooping myrtle.

From Victoria, Australia. Presented by Mr. J. Cronin, curator, Melbourne Botanic Garden. Received October 8, 1913.

"Drooping myrtle, or large-leaved water gum; 40 to 60 feet in height, 24 to 36 inches in diameter. Wood of a gray or pinkish hue and beautifully marked. It is close grained, hard, heavy, and tough; it is used for tool handles, poles of drays, ribs of boats, and the flooring boards of verandas." (*J. H. Maiden, Useful Native Plants of Australia.*)

Distribution.—This myrtaceous tree occurs in the valley of the Brisbane River in Queensland, the valley of the Clarence River in New South Wales, and along the coast of Moreton and Rockingham Bays in Queensland.

36273 to 36278.

From Minas Geraes, Brazil. Presented by Mr. Fred Birch. Received October 6, 1913.

36273. CARICA PAPAYA L. **Papaya.**

"*Karl Schultz.* One of the regular-shaped papayas; under the average size, about 6 inches long and 4 to 4½ inches in diameter. The rich orange-colored skin was the clearest and most nearly free from spots and wrinkles that I have ever seen; the flesh is extra thick and the seed cavity very small; seeds large. Extra good quality." (*Birch.*)

36274. ANNONA sp.

"Seeds of the *Jaca-andu*, the 'wild dog's jack fruit' or wild forest soursop of Minas Geraes. Fruit the size of an orange; very aromatic and delicious when partaken of very sparingly." (*Birch.*)

36275 to 36278. CARICA PAPAYA L. **Papaya.**

36275. "Seeds of the best long-stemmed papaya [*i. e.*, from staminate trees]; sweet and richly flavored; bears great quantities of sweet-scented jasminelike flowers on long stems, which are very attractive to humming birds and insects. As the young fruit grows its weight makes the long stem drop gradually to the trunk of the tree, where it forms one of the dangling clusters which surround and hide the trunk. Sometimes such a cluster will consist of from 15 to 25 pear-shaped fruits, weighing from 1 to 2 pounds each. They take a long time to grow and ripen. Most of this sort are inferior in taste." (*Birch.*)

36273 to 36278—Continued.

36276. "Seeds of a large, globular papaya, with firm, sweet flesh. One of the best tasting papayas and of very good keeping and shipping qualities." (*Birch.*)

36277. "Seeds from our *Watergate* papaya, of very delicate, rich flavor. The first ripe fruit was picked within 12 months of the setting out of the seedling tree, and within 18 months from that time we had over 200 fruits from it." (*Birch.*)

36278. "Seeds of a pear-shaped fruit weighing over 4 pounds each, about 12 inches long and 6 inches in diameter and of fine rich flavor. They would be worth growing in Florida or California. I have heard that colonists in Minas Geraes got them from Rio Grande do Sul." (*Birch.*)

36279. PEUMUS BOLDUS Molina. **Boldo.**

From southern Chile. Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received May 7, 1913.

"(No. 47.) A shrub or small tree belonging to the Monimiaceæ, with dark-green, very aromatic foliage and abundant white, fragrant flowers. The fruit, although sweet and agreeable, has little flesh. It is considerably prized in southern Chile." (*Wight.*)

"The boldo has opposite short-stalked ovate leaves, which are entire and rough on the surface. The flowers are in little axillary racemes, the males and females on different plants. The center of the male flower is occupied by a great many stamens and that of the female by from two to nine ovaries, which when ripe are succulent drupes, about the size of haws and very aromatic, as are all the parts of the plant. The bark is serviceable to tanners, and the wood is preferred before any other in the country for making charcoal, while the fruits are eaten." (*A. A. Black, in Lindley's Treasury of Botany.*)

36280 and 36281. CARICA PAPAYA L. **Papaya.**

From Colombo, Ceylon. Presented by Mr. Charles K. Moser, American consul. Received October 7, 1913.

Notes, through Mr. Moser, from an interview with Mr. H. F. Macmillan, curator, Royal Botanic Gardens, Peradeniya, Ceylon.

"Mr. Macmillan said that *Carica papaya* was introduced into Ceylon from the West Indies before 1678. *Carica candamarcensis* was a native of Ecuador and was introduced into Ceylon about 1880. It is being grown with some difficulty in the Hakgala Gardens, near Newara Eliya, and through the operation of birds it has been scattered among remote, inaccessible places through the mountains, where it is growing wild. It will not grow lower than 3,000 feet, and while its fruits are edible when stewed, little use is made of them. The papaya in general cultivation in Ceylon is the ordinary West Indian variety without any changes in form or nature. There is no Singhalese variety or any other papaya indigenous to Ceylon. So far as he knows *Carica papaya* and *Carica candamarcensis* have never been crossed. There is no 'Ceylon hybrid papaya' and no hybrid papaya of any sort. The distinctions noted by Dr. Huybertsz (that the 'Ceylon hybrid papaya' is not a cross between *Carica candamarcensis*, or mountain pawpaw, and *Carica papaya*, but a product of natural cross-fertilization between the *Carica papaya* introduced into the island from the West Indies about 1678 and a variety of the same species which he thinks indigenous to Ceylon and which he calls *Sinhala papaya*) are imaginary.

"If the flavor and papain of the papaya produced in Ceylon are superior to those produced in the West Indies or elsewhere, it is probably due to climatic or soil conditions. A monœcious form, in which the trees of both sexes bear fruit, is not very general, but is often found. The same tree is quite likely to produce long or round fruit, one form weak in papain and one strong.

"According to a resident of Kegalle, the trade in papain has been carried on in that district for more than 30 years and it is chiefly in the hands of Chetties and coast Moors at the present time. Owing to religious objections, it is very difficult to get a photograph of these people and their connection with the papain industry. This resident says that a large business is at present carried on in artificial papain, which is prepared from rice flour or starch. A pound of artificial papain costs only about 14 cents gold to produce but is sold in Colombo at from 98 cents to $1.25 per pound. It is asserted that a large number of parcels of this adulterated or artificial papain are being shipped to London. These facts, however, can not be verified by this office."

36280. Ordinary Ceylonese papaya.

36281. "This is a selection of *Carica papaya*, the juice of which is rich in papain." (*Moser.*)

36282. PANAX QUINQUEFOLIUM L. **Ginseng.**

(*Aralia quinquefolia* Decne. and Planch.)

From Songdo, Chosen (Korea). Presented by Mr. N. Gist Gee, Soochow University, Soochow, China. Received October 14, 1913.

"The soil is prepared by mixing sand and loam in the proportion of one to one. The sand is frequently obtained by sifting it from the bed of a near-by stream. In order to get as near as possible to the natural wild environments of the plant, the leaves of the oak or chestnut tree are collected, allowed to decay, and then dried.. When dry, this material is crumbled very fine and then mixed, half and half, with sand sifted from the hillside. This is obtained by first removing the top layer and getting the unexposed earth. The plants are cultivated on elevated beds about 6 or 8 inches above the pathways between them. These beds are usually just about wide enough for one to work them from one side (about 2 or 2½ feet). The length of the bed varies with the kind of field; short on hillsides, quite long in the valleys. Fertilizer 1 inch thick is spread upon the beds before the seeds are planted. The beds are covered over with sheds (ordinary sheds with curtains which can be rolled up or down, closing them in front). They seem to keep the plants sheltered throughout their entire period of growth and regulate the amount of sunlight by the curtains. Before planting, soak the seeds in water for four days until they swell and are nearly ready to burst. Then take them out and dry them. This should be done before fall. Then in the fall bury a vessel in the earth in a shady place and place the seeds, as already prepared, in it, leaving it uncovered. Allow them to freeze, leaving them in the vessel until the spring. Drive nails with heads as large as the ginseng seeds in a plank, making them about 1 inch apart. Use this to plant the seeds regularly about five-eighths of an inch deep. Place a seed in each hole and cover lightly with the hand. The rows should be about 6 inches apart. Spray with a very fine stream of water twice a day. Allow the planted seeds to receive the sunlight until the sprouts appear. During all of this time the beds should be protected from rains, but sprayed regularly twice a day. The soil should be kept in good condition by hand cultivation after the young plants come up. This care must be constantly given to the plants. The plants are taken up at the time they are about 1 year old and only the best ones are saved for transplanting. Many planters do this each year for six years after the plant comes up. Others transplant and select for only the first two or three years. The plants are planted out about 6 inches apart and in rows about 1 foot apart. Care must be taken to give the two regular waterings each day during the growing seasons." (*Gee.*)

36283 to 36484.

Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received July 7, 1913.

Quoted notes by Mr. Wight, except as otherwise indicated.

36283. ABRUS PRAECATORIUS L. **Jequirity.**

"(No. 310. Arequipa, Peru.) *Guarero.* Seeds obtained from an Indian medicine woman, from whom no reliable information could be obtained. They probably came from a lower altitude, but even if from the mountain region they can be grown only in the most favored localities of Florida and California."

36284 and 36285. AGROSTIS spp.

"From Tiahuanaco, Bolivia. Grass from the plateau near Tiahuanaco. It forms tufts and is rather wiry when old. It is doubtful whether even the llama will eat it except when it is young. The native grasses of this region appear to have little value, but they may be of botanical interest."

36284. "(No. 681.)" **36285.** "(No. 683.)"

36286. ALLIUM CEPA L. **Onion.**

"(No. 292.) Seeds obtained from an Indian woman in Arequipa, Peru. There seems to be practically no seed trade, as a business, in Peru, and these seeds may show some interesting variations."

36287. AMARANTHUS sp.

"(No. 595.) Seeds obtained from an Indian medicine woman in Oruro, Bolivia."

36288 to 36293. ANNONA CHERIMOLA Miller. **Cherimoya.**

36288. "(No. 341. Cuzco, Peru.) This fruit is very abundant in the market at Cuzco and of excellent quality. Probably none are grown within one or two days' journey from the city, and they are often brought from valleys at four or five days' distance."

36289. "(No. 591. Oruro, Bolivia.) Some of the very finest cherimoyas seen in South America were in the market at Oruro. They came from the vicinity of Cochabamba."

36290. "(No. 650. From Peru.) A cherimoya with surface slightly roughened."

36291. "(No. 651.) Rough surface, the usual type in Peru, but still of excellent quality."

36292. "(No. 649. Peru.) This fruit had a practically smooth surface and by many is considered superior to those with the rough surface."

36293. "(No. 660. Arequipa, Peru.) An excellent specimen."

36294. ANNONA MURICATA L. **Soursop.**

"(No. 652. Lima, Peru.) *Guanábana* or *custard-apple.* This is usually a larger fruit than the cherimoya and of softer texture. Quite common in the market at Lima and perhaps at other places in some seasons."

36295. APIUM sp.

"(No. 293. Arequipa, Peru.) Seeds obtained from an Indian woman in Arequipa."

See S. P. I. No. 36286 for further note.

36283 to 36484—Continued.

36296 to 36298. ARACHIS HYPOGAEA L. **Peanut.**

36296. "(No. 330. Cuzco, Peru.) *Manin.* Peanuts sold by Indian women on the market at Cuzco."

36297. "(No. 311. Arequipa, Peru.) *Manin.* Peanuts sold by Indian women in the market."

36298. "(No. 339. Cuzco, Peru.)"

36299. BRASSICA OLERACEA CAPITATA L. **Cabbage.**

"(No. 288. Arequipa, Peru.) *Repallo.* Seeds obtained from an Indian woman in Arequipa.

See No. 36286 for further note.

36300. BRASSICA OLERACEA CAPITATA L. **Cabbage.**

"(No. 289. Arequipa, Peru.) *Repallo blanco.* Seeds obtained from an Indian woman in Arequipa."

See S. P. I. No. 36286 for further note.

36301. BRASSICA RAPA L. **Turnip.**

"(No. 290. Arequipa, Peru.) *Navo.* Seeds obtained from an Indian woman in Arequipa. Grown by the Indians. May show some interesting variations."

36302. BRASSICA OLERACEA CAPITATA L. **Cabbage.**

"(No. 291. Arequipa, Peru.) Seeds obtained from an Indian woman in Arequipa. Grown by the Indians. May show some very interesting variations."

36303. CAESALPINIA sp.

"(No. 312. Arequipa, Peru.) Seeds of a large tree obtained from an Indian medicine woman in Arequipa, from whom no reliable information could be obtained. They probably came from a lower altitude, but even if from the mountain region they can be grown only in the most favored localities of Florida or California."

36304. CHENOPODIUM sp.

"(No. 295. Peru.) *Cañegua.* A species of Chenopodium said to be cultivated in the Puno district in the same way as quinoa, although what I supposed to be this is a smaller plant and more spreading in habit. It is probably less valuable than quinoa and certainly not grown to the same extent."

36305 to 36312. CHENOPODIUM QUINOA Willd. **Quinoa.**

"One of the plants cultivated by the native inhabitants of the highlands of Peru and Bolivia is a species of Chenopodium (*C. quinoa*) and so far as foliage is concerned not very unlike in general appearance our ordinary goosefoot. Its seeds, however, are white or nearly so and fully three times as large as those of *C. album.* In pre-Columbian times this plant was one of the main foods of the Indians, evidently ranking with the potato and corn in this respect. None of the Old World cereals being known before the discovery, it was only natural that the cultivation of this plant should have extended over a considerable area. In addition to Peru and Bolivia it was probably grown in some parts of Argentina and is known with certainty to have been cultivated in Chile; in fact, there even appears to have been an Araucanian or Mapuche name for it. Doubtless its cultivation at the present time is less extensive than formerly, due in part to the diminished Indian population and in part to an apparent ignorance or indifference on the part of the white population to its real merits as a food. At present it is probably most commonly grown on the Titicaca

36283 to 36484—Continued.

plateau. It is said to yield abundantly, though it does not seem to have occurred to any one to measure the yield of a given area. In late April and May some of the fields were red with compact panicles, for this seemed the only part of the plant visible for a short distance. Other fields had a greenish cast, there being two or probably more varieties. On the island of Chiloe, southern Chile, the plant grows much taller than any seen about Lake Titicaca and the foliage was also much more abundant, though whether the latter condition was due to the difference in the season or to the lower altitude and more abundant rainfall is uncertain. The grain is used by the Indians in the same manner as rice, being put in soups and made into porridge. It appeals to a North American primarily as a breakfast food and should rank with oatmeal and some of the better wheat preparations. It may be cooked and served in a manner similar to oatmeal, but to spread it out in a tray about an inch deep after steaming and then brown it in the oven makes it even more appetizing."

36305. "(No. 294. Peru.)"

36306. "(No. 355. La Paz, Bolivia.) *Cañahue.* This may be another species of Chenopodium grown by the Indians, or possibly the wild form of *C. quinoa*. What I supposed was this plant has a different habit from *C. quinoa*, however."

36307. "(No. 371. Peru.) The well-known quinoa, of which there are two and possibly three varieties."

36308. "(No. 619. Peru.)"

36309. "(No. 631. Cuzco, Peru.) White quinoa from near Cuzco."

36310. "(No. 643. Oraya, Peru.)"

36311. "(No. 644. Lima, Peru.) Quinoa from Lima."

36312. "(No. 648. Lima, Peru.)"

36313. CORIANDRUM SATIVUM L. **Coriander.**

"(No. 313. Peru.)"

36314 and 36315. CUCUMIS MELO L. **Muskmelon.**

36314. "(No. 306. Peru.)"

36315. "(No. 307. Peru.)"

36316 to 36323. CUCURBITA spp. **Squash.**

36316. "(No. 331. Cuzco, Peru.) There is a great variety of squashes in Peru and Bolivia, and they have evidently been cultivated for many centuries. Some of the vases taken from graves said by archeologists to be very old have evidently been modeled from different types of squashes."

36317. "(No. 340. Cuzco, Peru.)"

36318. "(No. 345. Cuzco, Peru.)"

36319. "(No. 348. Oruro, Bolivia.)"

36320. "(No. 349. Oruro, Bolivia.)"

36321. "(No. 363. Oruro, Bolivia.)"

36322. "(No. 369. Cuzco, Peru.)"

36323. "(No. 372. Oruro, Bolivia.)"

36324. LUCUMA sp.

"(No. 582. Cuzco, Peru.) These fruits were smaller and not so good in quality as those from Arequipa. Whether this is due to their being brought

36283 to 36484—Continued.

in before being fully mature or because of the higher altitude, it is impossible to say. They should be able to endure more cold than seeds from a lower altitude."

36325 to 36342. CUCURBITA spp.

36325 to 36327. CUCURBITA spp. **Squash.**

36325. "(No. 397. Cuzco, Peru.)"

36326. "(No. 586. Cuzco, Peru.)"

36327. "(No. 589. Cuzco, Peru.)"

36328. CUCURBITA FICIFOLIA Bouche.

"(No. 375. Cuzco, Peru.) *Lacayoti.* This vegetable has a rind resembling the watermelon in appearance, but with a thick stem like that of a squash. It is gathered before being completely matured and used with other vegetables and meats in the preparation of a kind of soup."

36329. CUCURBITA MAXIMA Duch. **Squash.**

"(No. 665. Lima, Peru.) Squash, pronounced excellent in quality by the American family to whom I took it to be tested."

36330 to 36341. CUCURBITA PEPO L.

"Most of them pronounced excellent by the American family to which I took them to be tested."

36330. CUCURBITA spp. **Pumpkin.**

"(No. 381. Oruro, Bolivia.) The only pumpkin seen either in Bolivia or Peru. Rather small, but of good quality."

36331. "(No. 654. Lima, Peru.)" **Squash.**

36332. "(No. 655. Lima, Peru.)" **Squash.**

36333. "(No. 656. Lima, Peru.) Large. Excellent in quality." **Squash.**

36334. "(No. 657. Lima, Peru.)" **Squash.**

36335. "(No. 659. Lima, Peru.) Middle-sized squash." **Squash.**

36336. "(No. 661. Lima, Peru.)" **Squash.**

36337. "(No. 662. Lima, Peru.)"

36338. "(No. 663. Lima, Peru.)" **Squash.**

36339. "(No. 664. Lima, Peru.)" **Squash.**

36340. "(No. 666. Lima, Peru.)" **Squash.**

36341. "(No. 667. Lima, Peru.)" **Squash.**

36342. CUCURBITA sp. **Squash.**

"(No. 669. Arequipa, Peru.) Squash from the market in Arequipa."

36343. CYPHOMANDRA sp. **Tree tomato.**

"(No. 346. Arequipa, Peru.) A fruit sold in the market at Arequipa. Not a true tomato, but called *Tomate chileno* by the Indians."

36344. EPHEDRA sp.

"(No. 364. Oruro, Bolivia.) A low-growing Ephedra on the mountains at Oruro. Probably of interest only in a botanical collection."

36345 and 36346. HORDEUM VULGARE L. **Barley.**

36345. "(No. 302. Arequipa, Peru.)"

36346. "(No. 303. Arequipa, Peru.)"

36283 to 36484—Continued.

36347 and 36348. LUPINUS spp.

36347. "(No. 287. Arequipa, Peru.) Seeds obtained from an Indian medicine woman in Arequipa, from whom no reliable information could be obtained. They probably came from a lower altitude, but even if from the mountain region they can be grown only in the most favored localities of Florida or California."

36348. "(No. 334. Cuzco, Peru.) A tall-growing lupine with very large white seeds, found in a garden at Cuzco, but of unknown origin."

36349. NASSELLA sp. **Grass.**

"(No. 680. Bolivia.) From the plateau near Tiahuanaco. This grass forms tufts and is rather wiry when old. It is doubtful whether even the llama will eat it except when it is young. The native grasses of this region appear to have little value, but they may be of botanical interest."

36350 to 36357. OPUNTIA spp. **Prickly pear.**

36350. "(No. 343. Cuzco, Peru.) *Tuna.* A variety with reddish fruits. This fruit is greatly prized in Peru and Bolivia, and this was exceptionally good in quality."

36351. "(No. 351. Oruro, Bolivia.) A wild cactus at 13,500 feet elevation, near Oruro. The seeds are very red, and dye is sometimes made from them."

36352. "(No. 359. Arequipa, Peru.) *Tuna.* From the market at Arequipa."

36353. "(No. 379. La Paz, Bolivia.) *Tuna.* With green fruit."

36354. "(No. 374. Oruro, Bolivia.) A wild species from the mountain above Oruro, 13,500 feet altitude."

36355. "(No. 354. La Paz, Bolivia.) The fruit of this is bronze colored and excellent in quality."

36356. "(No. 366. Oruro, Bolivia.) Seeds of a wild cactus found on the mountain above Oruro, at about 13,500 feet altitude."

36357. "(No. 370. Cuzco, Peru.) A tuna with green fruit, of good quality, but not quite equal to those with reddish or bronze-colored fruits."

36358 and 36359. ORMOSIA spp.

36358. ORMOSIA MONOSPERMA (Swartz) Urban.

"(No. 309. Lima, Peru.) *Guarero de la montaña.* Seeds obtained from an Indian medicine woman in Arequipa, from whom no reliable information could be obtained. They probably came from a lower altitude, but even if from the mountain region they can be grown only in the most favored localities of Florida or California."

36359. "(No. 309a. Lima, Peru.)"

The ormosias are tropical timber trees, the red and black seeds of which are often used for necklaces.

36360. HORDEUM VULGARE L. **Barley.**

"(No. 335. Oruro, Bolivia.)"

36361. PASSIFLORA sp. **Passion fruit.**

"(No. 352. Arequipa, Peru.) *Tumbas.* This is a fruit belonging to the Passifloraceæ and grown in the gardens of foreigners as well as by the Indians.

36283 to 36484—Continued.

The fruit is longer than that of *Passiflora ligularis*, being about 4 inches long and 1½ to 1¾ inches in diameter."

36362 and 36363. Passiflora ligularis Juss. **Passion fruit.**

36362. "(No. 588. Oruro, Bolivia.) This fruit is 2 or 3 inches in diameter and very agreeable in taste, being much prized by many foreigners as well as by the natives. It comes from some of the valleys a few days' journey from Oruro and at a lower altitude."

36363. "(No. 668. Lima, Peru.) Fruit of Passiflora, common in the market at Lima."

36364. Physalis sp.

"(No. 47. Arequipa, Peru.) A very good Physalis, grown in a garden at Arequipa and used for making preserves."

36365. Pimpinella anisum L. **Anise.**

"(No. 305. Peru.) Anise seed grown by the Indians."

36366 to 36368. Piptadenia spp.

36366. "(No. 399. Oruro, Bolivia.)"

36367 and 36368. Piptadenia cebil Grisebach. **Cebil.**

36367. "(No. 329. Cuzco, Peru.) Seeds, probably of some tropical tree. Native name *Huilca*. Obtained from an Indian medicine woman at Cuzco."

36368. "(No. 380. Oruro, Bolivia.) Probably a tropical tree. Obtained from an Indian medicine woman."

36369 and 36370. Pisum sativum L. **Pea.**

36369. "(No. 316. Peru.)"

36370. "(No. 620. Cuzco, Peru.) A variety of Pisum grown by the Indians near Cuzco."

36371. Prunus salicifolia H. B. K. **Black cherry.**

"(No. 593. Cuzco, Peru.) *Capoilles*. This Prunus grows wild about 25 miles from Cuzco and at a lower altitude, perhaps 8,000 or 9,000 feet, and is a native species. The fruit is about as large as an Early Richmond cherry. Mr. Payne, an English farmer beyond Cuzco, expects to try it as a stock for the sweet cherry and believes it will enable him to grow the latter fruit in that part of Peru."

36372 to 36374. Psidium guajava L. **Guava.**

36372. "(No. 579. Arequipa, Peru.) A pear-shaped guava, 3½ to 4 inches long."

36373. "(No. 658. Arequipa, Peru.) A large pear-shaped guava from Arequipa."

36374. "(No. 581. Arequipa, Peru.) A large guava, about 3 inches long and slightly pear shaped. Brought to the Arequipa market by the Indians. These trees sometimes reach a height of 20 feet in Peru."

36375. Ricinus communis L. **Castor bean.**

"(No. 314. Arequipa, Peru.) *Ygerilla*. Seeds obtained from an Indian medicine woman in Arequipa, from whom no reliable information could be obtained."

36283 to 36484—Continued.

36376. SAPINDUS SAPONARIA L. **Soapberry.**

"(No. 592. Oruro, Bolivia.)"

36377. RICINUS COMMUNIS L. **Castor bean.**

"(No. 315. Arequipa, Peru.) *Ygerilla.* Obtained from an Indian medicine woman at Arequipa, from whom no reliable information could be obtained."

36378. SAPINDUS SAPONARIA L. **Soapberry.**

"From Cuzco, Peru. Used in washing."

36379 to 36383. SOLANUM spp.

36379. "(No. 336. Sicuani, Peru.) Seeds of a wild species from near Sicuani."

36380. "(No. 362. Oruro, Bolivia.) A wild tuber-bearing species of Solanum, found on the mountain above Oruro at an elevation of about 13,000 feet. It evidently grows only 8 or 10 inches high in its dry, rocky habitat, and the tubers found were about one-half inch in diameter."

36381. "(No. 376. Quiquijana, Peru.) A wild species of Solanum. No tubers were found."

36382. "(No. 580. Arequipa, Peru.) A wild Solanum from Arequipa, of no value except for its botanical interest."

36383. "(No. 646. Oruro, Bolivia.) A wild Solanum from the mountain above Oruro at an elevation of 13,500 feet. It is not tuber bearing and is only of botanical interest."

36384. SOLANUM TUBEROSUM L. **Potato.**

"(No. 670. Arequipa, Peru.) Seeds from a field near Arequipa."

36385 and 36386. STIPA sp. **Grass.**

36385. "(No. 595a. Oruro, Bolivia.)"

36386. "(No. 682. Tiahuanaco, Bolivia.)"

36387. TOLUIFERA sp.

"(No. 395. Oruro, Bolivia). Seed, probably of a tropical tree, obtained from an Indian woman."

36388 to 36390. TRITICUM spp. **Wheat.**

36388. "(No. 304. Peru.)"

36389. "(No. 394. Oruro, Bolivia.)"

36390. "(No. 396. Oruro, Bolivia.)"

36391. TROPAEOLUM sp. **Nasturtium.**

"(No. 353. La Paz, Bolivia.) This nasturtium grew wild on the mountain side above La Paz and was seen in other localities. The petals are deeply laciniate."

36392. TRITICUM AESTIVUM L. **Wheat.**
(*T. vulgare* Vill.)

"(No. 398. Oruro, Bolivia.)"

36393. VICIA FABA L. **Broad bean.**

"(No. 342. Cuzco, Peru.) *Avas.* A variety grown about 12 miles from Cuzco and said to be good."

36394. ORMOSIA sp.

"(No. 365. Cuzco, Peru.) Large red seeds, probably of a tropical tree, obtained from an Indian medicine woman in Cuzco."

36283 to 36484—Continued.

36395 to 36484. PHASEOLUS spp. **Bean.**

"The following numbers are varieties of beans collected by Mr. W. F. Wight in various places during his South American trip. As found in the markets these beans are very badly mixed, one of the packets containing more than 20 distinct varieties. These varieties have been sorted out of the various numbered packets secured by Mr. Wight and each variety given a separate number. The sorting of the varieties has been done by Dr. D. N. Shoemaker, who has also furnished the descriptions." (*Skeels.*)

36395 to 36475. PHASEOLUS VULGARIS L.

36395. "No. 1. (Arequipa, Peru. April 22, 1913.) White bean, similar in shape to *Pea* bean, but variable in size. Selected from Wight's No. 284."

36396. "No. 2. (Concepcion, Chile.) *Caballeros.* White, kidney shaped. Selected from Wight's No. 78."

36397. "No. 3. (Arequipa, Peru. April 22, 1913.) White, with very light-yellow eye; resembles white *P. coccineus* in texture of skin. Selected from Wight's No. 285."

36398. "No. 4. (Panguipulli, Chile.) White, like *Pea* bean, but longer. Selected from Wight's No. 145."

36399. "No. 5. (Arequipa, Peru. April 22, 1913.) White, kidney shaped, resembling white *P. coccineus* in texture of skin. Selected from Wight's No. 281."

36400. "No. 6. (From Peru.) White."

36401. "No. 7. (Arequipa, Peru. April 22, 1913.) White, kidney shaped, much like No. 5 (S. P. I. No. 36399). Selected from Wight's No. 283."

36402. "No. 8. (Concepcion, Chile. February 10, 1913.) Very light yellow; size, shape, and pattern that of *Horticultural Pole.* Selected from Wight's No. 52."

36403. "No. 9. (Oruro, Bolivia.) White, round. Selected from Wight's No. 337."

36404. "No. 10. Selected from Wight's Nos. 675, 676, 677, and 678, from Arequipa, Peru, and No. 51, *Bueye*, from Concepcion, Chile."

36405. "No. 11. (*Avalitos.* Concepcion, Chile.) Brownish terra cotta, speckled with light yellow, and with darker eye. Selected from Wight's No. 71."

36406. "No. 12. (*Chincha.* Dr. Aguilar, Cuzco, Peru.) Light stippled ground, with light-yellow markings. Not uniform in size. Selected from Wight's No. 671."

36407. "No. 13. (*Azufrados.* Concepcion, Chile.) Coppery-yellow self. Selected from Wight's No. 76."

36408. "No. 14. (Dr. Aguilar, Cuzco, Peru.) Reddish yellow self. Selected from Wight's No. 673."

36409. "No. 15. (*Del Norte.* Dr. Aguilar, Cuzco, Peru.) Dun color self. Selected from Wight's No. 672."

36410. "No. 16. (*Avalitos.* Concepcion, Chile.) Buff ground, with markings from yellow to black. Uniform in size, shape, and pattern. Selected from Wight's No. 71."

36283 to 36484—Continued.

36411. "No. 17. (*Burros.* Concepcion, Chile.) Dark fawn, about the size of *Medium* beans. Selected from Wight's No. 74."

36412. "No. 18. (Concepcion, Chile.) Light olive. Selected from Wight's No. 72."

36413. "No. 19. (Oruro, Bolivia.) Light yellow, with darker eye. Selected from Wight's No. 389."

36414. "No. 20. (*Borito.* Talcahuano, Chile.) Golden bronze green, almost round. Selected from Wight's No. 259."

36415. "No. 21. (*Manteco.* Concepcion, Chile.) Yellow self. Uniform in shape but not in size. Selected from Wight's No. 75."

36416. "No. 22. (Panguipulli, Chile.) Buff self, with slightly darker eye. Selected from Wight's No. 144."

36417. "No. 23. (Arequipa, Peru.) Copper-orange self, straight kidney shape. Selected from Wight's No. 281."

36418. "No. 24. (Arequipa, Peru.) White ground, with reddish blotches. Selected from Wight's No. 282."

36419. "No. 25. (Concepcion, Chile.) White ground, half covered with dun, which is mostly covered with maroon blotches. Long, slightly curved. Selected from Wight's No. 50."

36420. "No. 26. (Concepcion, Chile.) White on one half, other end buff with purple stripes. Selected from Wight's No. 51."

36421. "No. 27. (Concepcion, Chile.) White ground, buff markings, small. Selected from Wight's No. 51."

36422. "No. 28. (Arequipa, Peru.) Selected from Wight's Nos. 675, 677, and 678. Half white, other half yellow buff, marked with deep purple stripes; large, kidney shaped."

36423. "No. 29. (Arequipa, Peru.) Selected from Wight's Nos. 282, 675, 677, 678, and 679. Half white, half red, even-margined pattern, long."

36424. "No. 30. Selected from Wight's Nos. 675, 676, 677, 678, 679, from Arequipa, Peru, and 357, from Oruro, Bolivia. White ground, mottled with reddish brown; large, flat."

36425. "No. 31. (Oruro, Bolivia.) Selected from Wight's Nos. 337, 344, 350, and 389. White ground, blotched with black and purple-brown; globular shape."

36426. "No. 32. (Oruro, Bolivia.) White ground with round red spots; flat. Selected from Wight's No. 350."

36427. "No. 33. (Oruro, Bolivia.) White stippled ground, with dark purple around eye, and splashed over half the bean. Selected from Wight's No. 337."

36428. "No. 34. (Oruro, Bolivia.) Yellowish stipple in smooth-margined pattern, overlaid with purplish stripe; long. Selected from Wight's No. 389."

36429. "No. 35. (Cuzco, Peru.) Selected from Wight's Nos. 357, 358, 373, and 377. White ground, spotted with dark reddish brown; flat, large."

36430. "No. 36. (Cuzco, Peru.) Selected from Wight's Nos. 357 and 361. White ground, spotted with black; large, long."

36431. "No. 37. (Cuzco, Peru.) Selected from Wight's Nos. 373, 377, and 383. Yellowish purple ground, striped with dark purple."

36283 to 36484—Continued.

36432. "No. 38. Selected from Wight's Nos. 358, 377, and 383, from Cuzco, Peru, and No. 344, from Oruro, Bolivia. White ground with brown blotches overlaid with purple stripes; globular."

36433. "No. 39. Selected from Wight's Nos. 337 and 350, from Oruro, Bolivia, No. 373, from Cuzco, Peru, and No. 677, from Arequipa, Peru. White ground blotched with reddish brown; flattened globular."

36434. "No. 40. (Oruro, Bolivia.) Selected from Wight's Nos. 337, 350, and 389. Covered with purple splashes; round."

36435. "No. 41. (Oruro, Bolivia.) Selected from Wight's Nos. 337 and 344. Yellowish purple ground, striped with dark purple and black; round."

36436. "No. 42. (Oruro, Bolivia.) Yellowish ground, almost covered by purple to black blotches and stripes; round. Selected from Wight's No. 337."

36437. "No. 43. Selected from Wight's No. 337, from Oruro, Bolivia, and No. 358, from Cuzco, Peru. Yellowish buff; small, round."

33433. "No. 44. (Oruro, Bolivia.) Selected from Wight's Nos. 337 and 389. Dark brown; small, round."

36439. "No. 45. Selected from Wight's Nos. 350 and 389, from Oruro, Bolivia, and Nos. 358 and 383, from Cuzco, Peru. Dark purple to black; small, round."

36440. "No. 46. Selected from Wight's Nos. 350 and 389, from Oruro, Bolivia, and Nos. 338, 358, 373, 377, and 383, from Cuzco, Peru. Maroon; small, globular."

33441. "No. 47. Selected from Wight's Nos. 338, 358, 373, 377, and 382, from Cuzco, Peru, and Nos. 337, 358, and 389, from Oruro, Bolivia. Dun colored, striped darker; small, round."

36442. "No. 48. Selected from Wight's Nos. 337 and 389, from Oruro, Bolivia, and Nos. 338, 358, 373, 377, and 383, from Cuzco, Peru. Dun colored with purple blotches; small, round."

36443. "No. 49. Selected from Wight's Nos. 282, 675, 676, 678, and 679, from Arequipa, Peru, and No. 389, from Oruro, Bolivia. Dun ground, finely stenciled and broadly striped with dark purple; large, straight."

36444. "No. 50. Selected from Wight's Nos. 337 and 350, from Oruro, Bolivia, and No. 282, from Arequipa, Peru. Dun ground, black striped; long."

36445. "No. 51. Selected from Wight's Nos. 675, 676, 677, 678, and 679, from Arequipa, Peru. Dun ground, dark purple stripes and blotches; long, square ended."

36446. "No. 52. (Oruro, Bolivia.) Maroon, with broad white micropylar stripe; round. Selected from Wight's No. 337."

36447. "No. 53. (Cuzco, Peru.) Selected from Wight's Nos. 358 and 383. Dun, with white micropylar stripes; small, round."

36448. "No. 54. (Oruro, Bolivia.) Dun, with purple stripes and broad white micropylar stripes. Selected from Wight's No. 337."

36449. "No. 55. (Oruro, Bolivia.) Selected from Wight's Nos. 337, 350, and 389. Drab with broad white micropylar stripe; large, straight, flat."

36283 to 36484—Continued.

36450. "No. 56. Selected from Wight's No. 383, from Cuzco, Peru, and No. 389, from Oruro, Bolivia. Dark drab with broad light micropylar stripe; small, long."

36451. "No. 57. Selected from Wight's Nos. 282, 675, 676, 677, and 678, from Arequipa, Peru, and Nos. 337 and 389, from Oruro, Bolivia. Bluish purple with light-dun micropylar stripe."

36452. "No. 58. Selected from Wight's Nos. 282, 675, 676, and 678, from Arequipa, Peru, and Nos. 350 and 387, from Oruro, Bolivia. Purple-brown with broad micropylar stripe; large, long, flat, broad."

36453. "No. 59. Selected from Wight's No. 146, from Panguipulli, Chile, and from No. 389, from Oruro, Bolivia. Dun self, slightly darker eye; long, straight."

36454. "No. 60. (Panguipulli, Chile.) Purple-garnet self; long, straight, square end. Selected from Wight's No. 142."

36455. "No. 61. (Panguipulli, Chile.) Dun self, with darker eye; long, square end. Selected from Wight's No. 143."

36456. "No. 62. (Arequipa, Peru.) Dun, mottled with dark purple; very large, flat. Selected from Wight's No. 579."

36457. "No. 63. (*Araucanos.* Concepcion, Chile.) Much like *Horticultural Pole.* Selected from Wight's No. 77."

36458. "No. 64. Selected from Wight's No. 350, from Oruro, Bolivia, and No. 383, from Cuzco, Peru. White, with black stripe from hilum to to micropylar end."

36459. "No. 65. Selected from Wight's Nos. 675 and 677, from Arequipa, Peru. White, with brown stripe lengthwise of the hilum; large, kidney shaped."

36460. "No. 66. (Arequipa, Peru.) White, purple blotch at hilum, and light-dun stripe on micropylar end, black eye; large, round, square ends."

36461. "No. 67. Selected from Wight's Nos. 677 and 678, from Arequipa, Peru, and Nos. 373 and 377, from Cuzco, Peru. Dun, with dark blotches; large."

36462. "No. 68. Selected from Wight's Nos. 675, 677, and 679 from Arequipa, Peru, and Nos. 358 and 383, from Cuzco, Peru. Dun, with purplish markings; large."

36463. "No. 69. Selected from Wight's No. 678, from Arequipa, Peru, and Nos. 350 and 389, from Oruro, Bolivia. Dun, striped purple; fairly large."

36464. "No. 70. (Oruro, Bolivia.) Reddish chrome, size and pattern like *Kentucky Cutshorts.* Selected from Wight's No. 344."

36465. "No. 71. (Concepcion, Chile.) Selected from Wight's Nos. 51 and 73. *Aliados.* Light dun, splashed olive; straight, round ends."

36466. "No. 72. Selected from Wight's No. 73, from Concepcion, Chile, and No. 338, from Cuzco, Peru. Light, with reddish markings; small."

36467. "No. 73. Selected from Wight's Nos. 675 and 677, from Arequipa, Peru, and Nos. 337, 344, and 350, from Oruro, Bolivia. Dark purple, almost self; long."

36468. "No. 74. Selected from Wight's Nos. 387 and 389, from Oruro, Bolivia, and No. 377, from Cuzco, Peru."

36283 to 36484—Continued.

36469. "No. 75. Selected from Wight's No. 677, from Arequipa, Peru, and Nos. 337, 344, and 389, from Oruro, Bolivia. Dun; large."

36470. "No. 76. Selected from Wight's Nos. 337 and 389, from Oruro, Bolivia, No. 357, from Cuzco, Peru, and Nos. 51 and 73, from Concepcion, Chile. Yellow or white, finely mottled; roundish."

36471. "No. 86. Mixed, oval, a little larger than *Medium* beans; colors various, dark."

36472. "No. 87. Flat, short, light colored, about the size of *Medium* beans; mixed."

36473. "No. 88. Globular, a little smaller than *Marrows*, colors various, dark."

36474. "No. 89. Mixed. Dark-red self; short, rather flat; a little larger than *Medium* beans."

36475. "No. 90. Large, yellow ground, mottled; straight, square ends; mixed."

36476 to 36478. PHASEOLUS COCCINEUS L. **Bean.**

36476. "No. 77. (Oruro, Bolivia.) White form of *Scarlet Runner*. Selected from Wight's No. 386."

36477. "No. 78. (Oruro, Bolivia.) *White Runner*. Selected from Wight's 388."

36478. "No. 79. (La Paz, Bolivia.) *White Runner*. Selected from Wight's No. 356."

36479 to 36484. PHASEOLUS LUNATUS L. **Lima bean.**

36479. "No. 80. (Ica, Peru.) White; a thick form of ordinary flat large Lima, very large."

36480. "No. 81. (Oruro, Bolivia.) White; a very large flat Lima. Selected from Wight's No. 388."

36481. "No. 82. (Arequipa, Peru.) White; large flat Lima. Selected from Wight's No. 286."

36482. "No. 83. (La Paz, Bolivia.) Almost white, stippled; flat, of peculiar kidney shape. Selected from Wight's No. 356."

36483. "No. 84. (Oruro, Bolivia.) White, almost covered with black; kidney shaped, larger at one end. Selected from Wight's No. 385."

36484. "No. 85. (La Paz, Bolivia.) White, almost covered with red; kidney shaped, larger at one end."

36485. AMYGDALUS PERSICA L. **Peach.**

(*Prunus persica* Stokes.)

From Kurram Valley, Northwest Frontier Province, India. Presented by Mr. Henry D. Baker, American consul, who secured them from Maj. G. J. Davis, commandant, Kurram Militia, Parachinar, Kurram Valley. Received October 11, 1913.

"The *Shalil* grows like a peach, which it much resembles, and has about the same blossom. The flesh is yellow and sweet, but it is not so juicy as that of a peach. Major Davis considers that it would be a particularly valuable fruit for cooking or canning, as the flesh, being harder than that of a peach, would probably not break so easily and could be more easily manipulated for such purposes. It grows at about 5,600 feet elevation. The only reference I can find to the *Shalil* in any book I have on India is in the Imperial Gazetteer of the Northwest Province, wherein it states as regards the Kurram Valley: 'The climate varies. In winter even Lower Kurram is very cold and a bitter wind prevails, while in the summer it is hot and dry. Upper Kurram is never unpleasantly hot, even in summer, while in winter snow covers the ground for weeks. Wherever water is available for irrigation the soil is highly productive, but owing to the absence of a settled government and the internal feuds of the people, the cultivable area is not all under cultivation, and irrigation is carried on only by small channels constructed and maintained by a single hamlet or family. Apples, pears, grapes, cherries, pomegranates, peaches, and a fruit peculiar to the Kurram and Tirah known as *Shalil* also grows, and with improved communications fruit growing will probably become an important industry. Famine is unknown in Kurram.'" (*Baker.*)

36486. PHOENICOPHORIUM BORSIGIANUM (Koch) Stuntz. **Palm.**
(*Stevensonia grandifolia* Duncan.)

From the Seychelles Islands. Presented by Mr. P. Rivaly Dupont, curator, Botanical Station. Received October 10,1913.

"This noble palm, famous for its beauty, is one of a group of five confined exclusively to the Seychelles Islands and each representing a single species. The tree in its mature state is wholly destitute of spines, whereas in the young state the deep orange-red petioles are clothed with black needlelike spines 1 to 3 inches long, and the young leaves are orange beneath and mottled with orange-brown spots above. The difference between the young and mature plants is so great that a person unfamiliar with the palm would consider them as belonging to different species. The flower spike is from 3 to 6 feet in length, divided into numerous slender branches swollen at the base and densely covered above with yellow flowers, each about a quarter of an inch in diameter. The flowers are monœcious." (*Gardeners' Chronicle, February 18, 1893, p. 201.*)

36487. NEPHROSPERMA VAN-HOUTTEANA (Wendl.) Balf. f. **Palm.**

From the Seychelles Islands. Presented by Mr. P. Rivaly Dupont, curator, Botanical Station. Received October 10, 1913.

36488. PUNICA GRANATUM L. **Pomegranate.**

From German East Africa. Presented by the Usumbwa Company, Nyembe-Bulungwa, Post Tabora. Received October 22, 1913.

Cuttings.

36489 to 36491.

From Tutuila, American Samoa. Presented by Commander C. D. Stearns, governor. Received October 14, 1913.

36489. CARICA PAPAYA L. **Papaya.**
36490. COLUBRINA ASIATICA Brongn.
36491. IPOMOEA sp.

36492 to 36496. NICOTIANA TABACUM L. **Tobacco.**

From Klaten, Java. Presented by the director of the Tobacco Experiment Station, Klaten, at the request of the director, Department of Agriculture, Buitenzorg, Java. Received October 15, 1913.

Cigar-wrapper types grown under the following names:

36492. "No. 1. *Kanari.*"
36493. "No. 2. Y."
36494. "No. 3. E."
36495. "No. 4. *Wonosobo.*"
36496. "No. 5. *Kedoe.*"

36497. GARCINIA OBLONGIFOLIA Champion.

From Hongkong, China. Presented by Mr. William J. Tutcher, Botanical and Forestry Department. Received October 22, 1913.

"A tree with leaves shortly stalked, oblong, narrowed at the base, 2½ to 3 inches long, the upper ones almost sessile. The yellow flowers produced in May are terminal and unisexual, the males three to seven together and shortly pedunculate. Sepals 2 lines, petals nearly 5 lines long. Stamens consolidated into a solid mass, occupying the center of the flower. The females are solitary and rather smaller. It is common in the Happy Valley woods, Hongkong, but is not known to come from elsewhere. The foliage is nearly the same as that of *G. cambogia*, but the male pedicels are much shorter and the anthers more numerous." (*Bentham's Flora Hongkongensis, p. 25.*)

36498 to 36527. TRITICUM AESTIVUM L. **Wheat.**

(*T. vulgare* Vill.)

From Tashkend, Turkestan. Presented by Dr. Richard Schroeder, Tashkend Agricultural Experiment Station. Received October 14, 1913.

"Our Turkestan spring wheats are often sown in the late fall or in the winter and do fairly well, though our winter is rather hard. They are sown on nonirrigated land and stand drought exceedingly well, better than durum. The most of our precipitation we get in the spring, maximum in March, the summer and fall being exceedingly dry, some years without a drop of rain, so I think that our spring wheat will not suit your Southern States, nor even your Central States, Kansas for instance, for they must suffer from rust in rainy summers. But in California and Utah, where they do not have summer rains, these wheats will probably be found of high value." (*Extract from Dr. Schroeder's letter, dated October 3/16, 1913.*)

36498.	"No. 181.	Spring."
36499.	"No. 251.	Spring."
36500.	"No. 341.	Spring."
36501.	"No. 357.	Spring."
36502.	"No. 370.	Spring."
36503.	"No. 371.	Spring."
36504.	"No. 414.	Winter."
36505.	"No. 420.	Spring."
36506.	"No. 421.	Spring."
36507.	"No. 424.	Winter."
36508.	"No. 432.	Winter."
36509.	"No. 433.	Spring."
36510.	"No. 435.	Winter."
36511.	"No. 438.	Winter."
36512.	"No. 520.	Winter."
36513.	"No. 524.	Winter."
36514.	"No. 528.	Winter."
36515.	"No. 537.	Spring."
36516.	"No. 553.	Winter."
36517.	"No. 622.	Winter."
36518.	"No. 639.	Winter."
36519.	"No. 694.	Spring."
36520.	"No. 708.	Spring."
36521.	"No. 787.	Winter."
36522.	"No. 792.	Winter."
36523.	"No. 800.	Winter."
36524.	"No. 804.	Winter."
36525.	"No. 888.	Winter."
36526.	"No. 889.	Winter."
36527.	"No. 896.	Winter."

36528. HIBISCUS WAIMEAE × (?).

From Honolulu, Hawaii. Presented by Mr. E. V. Wilcox, Hawaii Agricultural Experiment Station. Received October 24, 1913.

"*Ruth Wilcox.* A very vigorous, freely branching shrub with good foliage, upright growth, and light-gray bark. Leaves cordate, crenate, blunt, 2¾ to 4½ inches wide, 3 to 5 inches long, light green, shiny, pubescent on both sides, petiole 1½ inches long. Flowers 6 inches wide, pure white, no eye, petals wide, column crimson toward the tip, 4 inches long, stigma scarlet, filaments crimson, bracts six to eight, greenish brown, peduncle 1 inch long. Flower opens at noon, lasts two days, has delicate perfume. Best white thus far bred. Self seeding.

"A hybrid between the varieties *May Damon* [described as itself a hybrid between two native varieties, *Kauai* white and *Beatrice*], and *Knudsen* white, one of the three horticultural forms of the native *Hibiscus waimeae*." (*Wilcox and Holt, Ornamental Hibiscus in Hawaii, Bul. 29, Hawaii Agricultural Experiment Station.*)

36529. ARBUTUS CANARIENSIS Duhamel. **Madronho.**

From Teneriffe, Canary Islands. Presented by Dr. George V. Perez. Received October 23, 1913.

"The madronho is becoming very rare here, but it is still found in the mountain ravines. It will not stand frosts." (*Perez.*)

"It is one of the most beautiful shade trees that is grown around Naples and should be tested for park and street purposes in Florida and southern California. Its clean pink and green bark and dark-green foliage make it a most strikingly beautiful object." (*Fairchild.*)

36530. SPHENOSTYLIS STENOCARPA (Hochst.) Harms.

From Amani, German East Africa. Presented by Dr. A. Zimmerman, director, Kaiserliches Biologische Landwirtschaftlichen Institut. Received October 13, 1913.

See S. P. I. No. 31194 for previous introduction and description.

36531. DIOSPYROS KAKI L. f. **Persimmon.**

From Sibpur, near Calcutta, India. Presented by the Superintendent, Royal Botanic Gardens. Received October 20, 1913.

36532. ANNONA MURICATA L. **Soursop.**

From Honolulu, Hawaii. Collected by Mr. R. A. Young, of the Bureau of Plant Industry. Received September 6, 1913.

"A seedling soursop producing fruits weighing up to 1½ pounds each. Collected July 28, 1913. On the authority of Mr. T. F. Sedwick, the quality may be said to be unusually fine. Fruit of this flavor would make a very delicious sherbet. The tree is in the yard of Mr. Frank Cooke, in the Kaimuki district of Honolulu." (*Young.*)

36533. ORYZA LONGISTAMINATA A. Chev. and Roehrich. **Perennial rice.**

From Nogent-sur-Marne, France. Presented by the director, Jardin Colonial. Received October 24, 1913.

"Seeds of perennial rice discovered in French West Africa by M. Ammann, chief of the chemical service of this establishment."

A full discussion of this interesting variety is given in La agriculture pratique des pays chauds, vol. 11, pt. 1, pp. 89 to 94 and 265 to 278, and vol. 11, pt. 2, pp. 433 to 458 (1911).

36534. CUCUMIS MELO L. **Muskmelon.**

From Leghorn, Italy. Presented by Mr. Leon Pöhm de Sauvanne, American vice consul. Received October 22, 1913.

"This melon has a cream-white flesh or pulp, is very aromatic and sweet, has a smooth skin, measures about 6½ by 8½ inches, and weighs from 4 to 5 pounds." (*De Sauvanne.*)

36535. BELLUCIA COSTARICENSIS Cogniaux. Papaturro agrio.

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, Department of Agriculture. Received October 27, 1913.

"Shrub with large flowers and yellow fruits of the size of a gooseberry, and with strongly pronounced taste, between sweet and sour. Known only in the valley of Diquis, and the name given it by Wercklé does not appear very appropriate." (*Pittier, Las Plantes Usuales de Costa Rica, 1908.*)

36536 to 36545.

From Petrograd, Russia. Presented by Mr. Raphael Zon, of the U. S. Forest Service, who secured them from Mr. W. A. Dubiansky, Imperial Botanic Garden, Petrograd. Received October 25, 1913.

36536 to 36540. CALLIGONUM spp.

36536. CALLIGONUM ARBORESCENS Litw.

"Trans-Caspian Kara Kum."

Distribution.—A shrub about 10 feet high, found in the region of southwestern Asia east of the Caspian Sea. This species and the one following have proved excellent sand binders in Turkestan. (See S. P. I. Nos. 9583 and 9594.)

36537. CALLIGONUM CAPUT-MEDUSAE RUBICUNDUM Herder.

"Trans-Caspian Kara Kum."

36538. CALLIGONUM CAPUT-MEDUSAE Schrenk.

"Trans-Caspian Kara Kum.

36539. CALLIGONUM ERIOPODUM Bunge.

"Trans-Caspian Kara Kum."

36540. CALLIGONUM SETOSUM Litw.

"Trans-Caspian Kara Kum."

36541. ELYMUS sp.

"A good fodder grass which stands a great deal of alkali in the soil, but requires some moisture." (*Zon.*)

36542 to 36544. ELAEAGNUS ANGUSTIFOLIA L. **Oleaster.**

36542. "Forma *spontanea* Litw. Stands alkali and sandy soil well." (*Zon.*)

36543. "Forma *sphaerocarpa* Litw. Buchara. It is not afraid of frosts; grows equally well on very alkaline and shifting sands. The fruit is less palatable than that of *E. angustifolia* forma *culta* or *E. angustifolia spontanea.*" (*Zon.*)

36544. "Forma *culta* Litw. Trans-Caspian prairie, Buchara. In gardens on sandy soils of the valley of the River Amu-Darya. Fairly palatable edible fruit." (*Zon.*)

36545. AELUROPUS LITTORALIS (Gouan) Parl.

"A splendid grass for sands. It yields hay of high quality; is not afraid of very heavy frosts." (*Zon.*)

36546 to 36548. AVENA SATIVA L. Oat.

From Petrograd, Russia. Presented by Mr. Basil Benzin, Department of Agriculture. Received February 12, 1913.

36546 to 36548—Continued.

36546. "(No. 20.) Local oats, unirrigated, from Vernoe district, Semiryetchensk Province. Crop 1912." (*Benzin.*)

"A commercial sample of a small yellow oat, probably of the Sixty-Day type (C. I. No. 750)." (*C. W. Warburton.*)

36547. "(No. 111.) Oats, from Pishpek district, Semiryetchensk Province. Crop 1912." (*Benzin.*)

"An ordinary commercial sample. Grain of the Sixty-Day type, but lighter in color (C. I. No. 716.)" (*C. W. Warburton.*)

36548. "(No. 114.) Swedish Select oats, irrigated, from Tashkend district, Syr-Darya Province. Crop 1912." (*Benzin.*)

"Typical of the variety (C. I. No. 717)." (*C. W. Warburton.*)

36549. CYAMOPSIS TETRAGONOLOBA (L.) Taub. **Guar bean.**

From Whittier, Cal. Presented by Mr. R. S. Woglum, of the Department of Agriculture. Received October 29, 1913.

"During the summer of 1911 I collected a few seeds of the Gawarfulli bean at Nagpur, Central Provinces, India. This seed was planted this spring in our garden here in Whittier and we secured about 30 plants." (*Woglum.*)

36550. PAHUDIA RHOMBOIDEA (Blanco) Prain. **Tindalo.**

From Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Division of Horticulture, Lamao Experiment Station. Received November 1, 1913.

"A large forest tree, attaining a height of 25 meters. The tindalo is one of our most valuable timber trees and is not found outside of the Philippines. It would unquestionably succeed well in Porto Rico and Panama, but is too tender for Florida." (*Wester.*)

"The tindalo is a tree reaching a height of 25 to 30 meters [80 to 90 feet] and a diameter of 60 to 80 cm. [24 to 32 inches], occasionally up to 120 cm. [4 feet]. It is usually without buttresses and has a somewhat regular bole 12 to 15 meters [37 to 46 feet] in length. The crown, one-half the height of the tree, is broad spreading, base shaped, semiopen, and partly deciduous during the dry season. The tindalo has a wide distribution throughout the islands, but is not abundant. It is found scattered usually on dry, shallow, or rocky soil on the low ridges and hills along the coast. Less frequently it is scattered in the edges of the dipterocarp forests. The bark is about 10 mm. [two-fifths of an inch] in thickness, creamy yellow in color, and has an uneven surface, due to the saucerlike depressions made by the shedding of the outer layer. It is covered with numerous corky pustules, and sheds in scroll-shaped patterns. The inner bark is brownish yellow in color. The leaves are alternate, simple, compound, with three [sometimes four] pairs of leaflets. These are smooth with white bloom beneath, from 3½ to 10 cm. [1½ to 4 inches] long and from 3 to 5 cm. [1 to 2 inches] wide. The sapwood is white to creamy brown; the heartwood is yellowish red, becoming very dark with age. It is heavy, hard, durable, not difficult to work, has a fine, usually straight grain, takes a beautiful finish, and is almost free of the defect of warping. Tindalo has the following uses: Fine furniture, cabinet making, fine interior finish (doors, floors, stairways, panels, etc.), railway ties, shipbuilding, and general construction purposes." (*Whitford, Principal Forest Trees of the Philippines, p. 39.*)

36551 to 36560. MEDICAGO SATIVA L. **Alfalfa.**

From Poona, India. Presented by Rao Sahib G. K. Kelkar, Extra Deputy Director of Agriculture. Received November 3, 1913.

Description by Mr. Gammie, Imperial Cotton Specialist, taken from Mr. Forster Main's letter dated April 4, 1913.

"From botanical examination it seems that the specimens do not show practically any appreciable difference, the only slight differences which were noticed being the more or less hairy nature of the leaves, the prominent or obscure toothing of their margins, the greater or less emargination of their tips and the smaller or larger size of the same."

36551. "(No. 1.) Grown at Ganeshkhind Garden from seed obtained from Manavadar. Has small obovate-cuneate leaflets three-fourths to 1 inch long by one-fifth to one-fourth inch broad, hairy on the under surface, midrib, and nerves, with the apex emarginate and retuse."

36552. "(No. 2.) Grown at Ganeshkhind Garden from seed obtained from Rajkot. Has less hairy leaflets with less prominent teeth."

36553. "(No. 3.) Grown at Ganeshkhind Garden from seed obtained from Palitana No. 1. Teeth of leaflets more prominent."

36554. "(No. 4.) Grown at Ganeshkhind Garden from seed obtained from Palitana No. 2. More or less like Manavadar No. 1. (S. P. I. No. 36551.)"

36555. "(No. 5.) Grown at Ganeshkhind Garden from seed obtained from Bhownugger. Less hairy, large leaflets 1¼ to 1½ inches long by one-fourth to one-half inch, oblanceolate, less emarginate, teeth rather obscure."

36556. "(No. 6.) Grown at Ganeshkhind Garden from seed obtained from Bhownugger (Umrala). Teeth of leaflets prominent, leaflets small, hairy, less emarginate. The flowers showed no difference."

36557. "(No. 7.) Grown at Ganeshkhind Garden from seed obtained from Bhownugger (Godhra). Teeth of leaflets prominent, leaflets small, hairy, less emarginate."

36558. "(No. 8.) Grown at Ganeshkhind Garden from seed obtained from Bhownugger (Botad). Leaflets small, teeth prominent."

36559. "(No. 9.) Grown at Ganeshkhind Garden from seed obtained from Bhownugger (Kundla). Leaflets small, teeth prominent."

36560. "(No. 10.) From Junaghar. A new sample for your trial."

36561. ROLLINIA ORTHOPETALA A. DC.

Seeds from S. P. I. No. 22512 grown at the Plant Introduction Field Station, Miami, Fla., in 1912. Received November 6, 1913.

"From its behavior at Miami this tree promises to be a success in south Florida. It should be tried on the edge of the Everglades. Mrs. Fairchild and I both found the fruit delicious." (*David Fairchild.*)

See S. P. I. No. 27579 for previous introduction and description and Plate I for an illustration of a fruiting branch of this tree.

36562. ANNONA CHERIMOLA × SQUAMOSA.

Grown at the Plant Introduction Field Station, Miami, Fla., from Garden No. 1803, tree B. Received November 3, 1913.

"A fruit resulting from the cross of S. P. I. No. 26731, *Annona cherimola*, ♀, and S. P. I. No. 26741, *Annona squamosa*, ♂. I made this cross in May, 1910. The work was done between five and six o'clock in the evening, as you know *squamosa* pollen is ripe at that time. The petals of the *cherimola* were forced open and the pollen dropped in." (*Simmonds.*)

36563 and 36564.

From Chang Chun, Manchuria. Presented by Dr. R. J. Gordon, Irish Presbyterian Mission. Received October 25, 1913.

36563. LESPEDEZA sp. **36564.** MELILOTUS ALBA Desr.

36565 and 36566. LINUM USITATISSIMUM L. Flax.

From Bombay, Poona, India. Presented by Mr. William Burns, economic botanist. Received November 1, 1913.

36565. "From Punjab. Flax which is grown after the rice crop." (*Burns.*)

36566. "From the United Provinces, Jalaun district. Grown at the Orai farm. Flax which is grown after the rice crop." (*Burns.*)

36567 and 36568.

From Santa Cruz, Argentina. Presented by Mr. H. W. Reynard. Received November 7, 1913.

36567. FABIANA IMBRICATA Ruiz and Pavon. (?)

"*Matta verde.* Grows on mud flats and river valleys; is of a softer nature than the *Matta negra* and does not attain quite such a height, about 2 feet to 2 feet 6 inches." (*Reynard.*)

"An evergreen shrub of heathlike appearance, ultimately reaching 6 to 8 feet in diameter and in height; erect in habit when young, ultimately spreading. Branches downy, long, and tapered, densely furnished with short, slender twigs, from one-half to 2 inches long. These twigs are themselves completely covered with tiny, pointed, 3-angled leaves, one-twelfth inch long, and, in June, are each terminated by a solitary pure white flower. Corolla five-eighths to three-fourths inch long, tubular, but narrowing towards the base, with the rounded shallow lobes at the apex reflexed; calyx bell shaped, one-twelfth inch long.

"Native of Chile; introduced in 1838. This beautiful shrub is unfortunately rather tender, and at Kew, although it occasionally survives the winter, has never been a success in the open. In milder and more upland localities it is a shrub of great beauty, flowering freely and transforming each branch into a slender raceme of blossom. It likes a light soil, and can be increased easily by late summer cuttings in gentle heat." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, pp. 549–550.*)

36568. BERBERIS sp. Barberry.

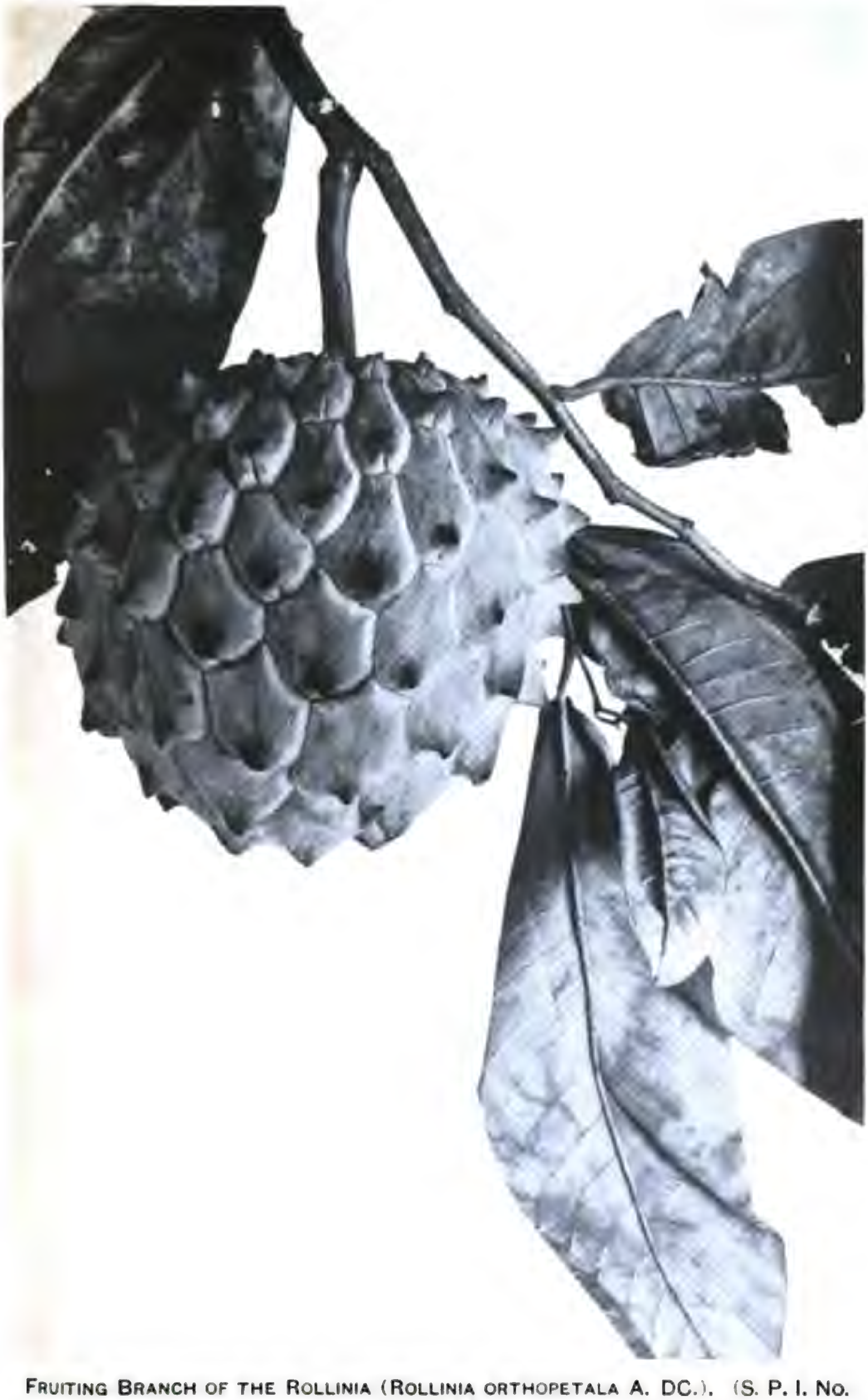
"*Califata.* A prickly plant, very hardy, attains a height of about 5 feet, has a little black berry which is eaten by the natives of the country; grows in corners sheltered from the wind in little clumps of from 5 to 15 bushes, but occasionally one sees a bush standing alone on the high pampas." (*Reynard.*)

36569 and 36570.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received November 7, 1913.

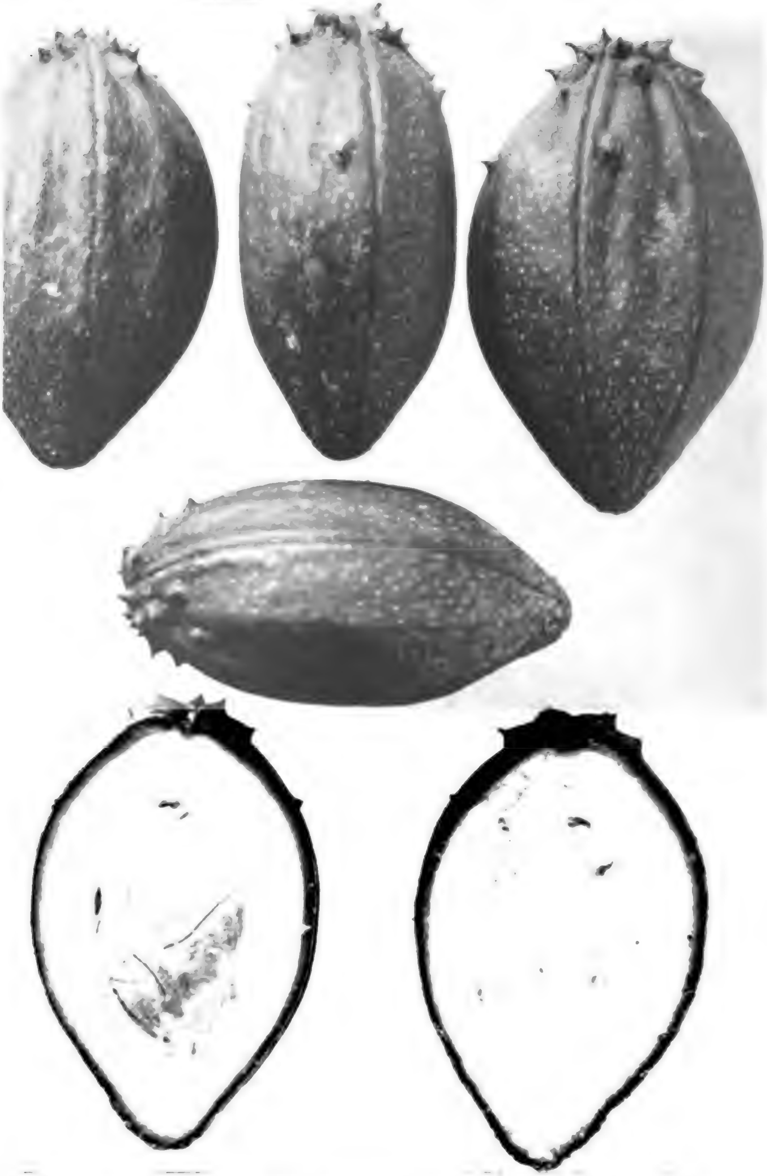
36569. EUONYMUS sp.

"(No. 1889a. Hsiao wu tai shan, Chihli Province, China. August 27, 1913.) A very small Eunoymus, somewhat like *E. radicans*, but of upright growth. Rare, found in a stony bank. Of value as a small lining shrub along pathways and shrubbery beds." (*Meyer.*)



FRUITING BRANCH OF THE ROLLINIA (ROLLINIA ORTHOPETALA A. DC.). (S. P. I. NO. 36561.)

A Brazilian fruit closely related to the cherimoya and sugar-apple. It is perhaps a more showy fruit than either, the carpels being tinged with orange, and certainly deserves the praise given it by Baker, Fischer, and others. Natural-size photograph (P10149FS), by E. L. Crandall, of fruit borne at the Miami Field Station by S. P. I. No. 2512, August 21, 1912.



THE TACACO, A COSTA RICAN VEGETABLE (POLAKOWSKIA TACACO PITTIER).

These fruits are borne on a rapidly growing vine resembling other cucurbit vines. They are picked green, boiled in water, and form a favorite addition to vegetable soups, or are pickled. It is a near relative of the chayote (*Chayota edulis*). Natural-size photograph (P6119FS), by E. L. Crandall, of S. P. I. No. 26245, November 19, 1909. (See S. P. I. No. 36592.)

36569 and 36570—Continued.

36570. Lilium sp. **Lily.**

"(No. 1033. Hsiao wu tai shan, Chihli Province, China. August 4, 1913.) A lily of vigorous growth, bearing orange-red flowers, which have dark spots on their petals. Cultivated in Tië ling temple. Of use as an ornamental garden perennial for the cooler sections of the United States; can stand considerable shade." (*Meyer.*)

36571 and 36572. Rubus sp. **Blackberry.**

From San Jose, Costa Rica. Presented by Mr. J. E. van der Laat, director, Department of Agriculture, at the request of Mr. Carlos Wercklé. Received December 13, 1913.

36571. "*Castille* blackberry, famous on account of its extraordinary size and taste." (*Van der Laat.*)

36572. "*Stone* blackberry, famous on account of its extraordinary size and taste." (*Van der Laat.*)

36573. Bactris utilis Benth. and Hook. **Palm.**

From San Jose, Costa Rica. Presented by the Department of Agriculture, San Jose. Received December 16, 1913.

"By far the largest and best variety."

"Near *Guilielma* (*Bactris*) *speciosa*, from which, however, it is easily distinguished. This species of palm grows in Costa Rica on the eastern slope in the luxuriant primeval forests at an altitude of from 2,500 to 4,000 feet. The mealy fruits, about the size and shape of a large pigeon's egg, have when cooked very much the taste of potatoes, and form in many places one of the principal foods among the Indians. At San Jose and Cartago I saw this fruit piled up in heaps in the market, whither it had been brought for sale by the Indians from Orosi. It is called by the inhabitants *Pechevaye.*" (*Oersted, Videnskabelige Meddelelser, 1858, p. 46.*)

36574. Aleurites montana (Lour.) Wils. **Mu-yu (wood-oil) tree.**

From Tak Hing, southern China. Presented by Rev. J. K. Robb, American Reformed Presbyterian Church. Received December 27, 1913.

"Seeds of a tree that is found in this vicinity. The natives tell me that the oil is extracted from the seeds, and even by their crude methods of operation the yield is as much as 25 per cent of the total weight. This seems rather large to me, though I must confess to complete ignorance on the subject." (*Robb.*)

36575. Garcinia mangostana L. **Mangosteen.**

From Kingston, Jamaica. Presented by the Department of Agriculture. Received November 4, 1913.

36576. Soja max (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

From Fakumen, Manchuria. Presented by Dr. S. A. Ellerbeck, Mukden Hospital, who secured them from Mr. F. W. S. O'Neill, Fakumen. Received November 1, 1913.

"A bean called *white eyebrow bean*. This is the nearest I can obtain to the bean you mention. It is said that this bean produces plenty of oil. The name seems to arise from the white edge from which the sprouts come" (*O'Neill.*)

36577 to 36587. TRITICUM AESTIVUM L. **Wheat.**
(*Triticum vulgare* Vill.)

From Sydney, New South Wales, Australia. Presented by Mr. G. Valder, at the request of Mr. W. M. Carne, of the Department of Agriculture. Received November 7, 1913.

36577. "Bathurst No. 2."
36578. "Cedar."
36579. "Cleveland."
36580. "Cowra No. 3."
36581. "Genoa."
36582. "John Brown."
36583. "Jonathan."
36584. "Wagga No. 19."
36585. "Warren."
36586. "Rymer."
36587. "Thew."

36588. BENZOIN sp.

From Chang Ning, Kiangsi, via Swatow, China. Presented by Rev. C. E. Bousfield, American Baptist Mission. Received October 28, 1913.

"Seeds of a large shrub which grows on the hills here. The berries and leaves are very fragrant and are used by the Chinese as a flavoring for their food." (*Bousfield.*)

36589. CITRUS GRANDIS (L.) Osbeck. **Pomelo.**

Received from Mr. Robert A. Young, of the Bureau of Plant Industry, September 6, 1913.

"Seeds from pomelos estimated to be at least 6 inches in diameter, served on the S. S. *Manchuria* from Hongkong to San Francisco. The fruit was served broken into sections. The flesh was white and sweet, with scarcely any acidity, and was very agreeable to the taste. The texture was rather coarse. The steward said they came from Canton and were called *Canaloni* (?) *melons*." (*Young.*)

36590 to 36592.

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, Department of Agriculture. Received November 11, 1913.

36590 and 36591. LICANIA PLATYPUS (Hemsl.) Fritsch. **Sansapote.**

36590. "Seeds of the smaller sansapote from the Pacific coast. Large fruit with highly aromatic and sweet flesh; very good." (*Wercklé.*)

36591. "Seeds of the large sansapote from the Atlantic slope, at 50 meters altitude; fruit weighs up to 4 pounds; one of the best fruits, by many people preferred to *Achradelpha* (*Lucuma*) *mammosa*." (*Wercklé.*)

36592. POLAKOWSKIA TACACO Pittier. **Tacaco.**

"A cucurbitaceous plant, the fruit of which is used as a green vegetable. It is a near relative to the chayote, but the fruit is smaller, fusiform, set with stiff spines at the base, and of quite a distinct taste. It is one of the primitive foods of the native Indians of Costa Rica, where it grows wild in fresh, shady places of the temperate region, and its use as a vegetable has been readily adopted by the Spanish Costa Ricans. Nowadays the plant is at least semicultivated on the central plateau. To grow it, a whole mature fruit is set in a rich, loose leaf mold, with the spiny end up and almost showing at the surface. The vines spread on the ground or on low bushes or supports. The fruits, which are about 2½ inches long and 1½ inches broad, hang from short peduncles and are picked when still green. After taking away the basal spines, they are boiled in water either whole or cut into small pieces, or pickled, or made into preserves. They are also a favorite addition to the native vegetable soups." (*H. Pittier.*)

For previous introductions, see S. P. I. Nos. 26244 and 26245.

For an illustration of the fruit of this cucurbit, see Plate II.

36593 to 36595. Colocasia sp. **Dasheen.**

Grown at the Plant Introduction Field Station, Brooksville, Fla.

36593. "A selected strain of the Trinidad dasheen (or taro) in which the flesh, when baked or boiled, is dry and mealy, of good flavor, and creamy white in color. The large corms on exposure to the air for a time after cooking, however, may become slightly grayish in color. (Grown from a single hill selected from S. P. I. No. 15395 in 1911. The crop was tested for its edible qualities in 1912 and again in 1913. In the former year the quality was uniform. In the latter a number of plants produced tubers of quality differing from the above, though the bulk of the crop was uniform. The variation was quite possibly due to the accidental mixing of other tubers before planting.)" (*R. A. Young.*)

36594. "A selected strain of the Trinidad dasheen in which the flesh when cooked is mealy, slightly nutty in flavor, and grayish white in color. (The source of this selection is the same as for S. P. I. No. 36593.)" (*R. A. Young.*)

36595. "A selected strain of the Trinidad dasheen in which the flesh when baked or boiled is creamy white in color, moist, and of fair flavor. The flesh of the corms sometimes becomes slightly grayish a short time after cooking. (The source of this selection is the same as that of S. P. I. Nos. 36593 and 36594.) Mixed with the foregoing were some tubers of S. P. I. No. 36595, in which the flesh of the corms is grayish white, mealy, and slightly nutty when cooked." (*R. A. Young.*)

36596. Panax quinquefolium L. **Ginseng.**

(*Aralia quinquefolia* Decne. and Planch.)

From Seoul, Chosen (Korea). Presented by Miss Katharine Wambold, through the American consul general. Received November 8, 1913.

"It is very difficult to grow the plants, the Koreans tell me. They start them in small masses of stones. It takes several years to get even small plants. September, I am told, is the proper time to buy seeds. However, it is becoming increasingly difficult to obtain them." (*Wambold.*)

36597. Solanum quitoense Lamarck.

From Santander-Quilichao, Colombia. Presented by Mr. D. G. Prado. Received November 7, 1913.

"*Lulo.* A fruit resembling a tomato. The fruit, when ripe, is yellow, has a sour, pleasant taste, and is used to make cooling drinks. It lasts 8 or 10 days after cut, and in the States it may be cultivated with profit to supply the soda fountains with a fruit to make flavoring extracts. I believe it can be grown in Florida, California, and Texas." (*Prado.*)

36598. Lagenaria vulgaris Ser. **Gourd.**

From Lagos, Southern Nigeria. Presented by Mr. J. A. de Gage, King's College, Lagos, at the request of Mr. G. Regnard, Port Louis, Mauritius. Received November 7, 1913.

36599. Juglans australis Griseb. **Walnut.**

From Buenos Aires, Argentina. Presented by Mr. A. J. Zübiaur, through Mr. W. F. Wight, of the Bureau of Plant Industry. Received November 10, 1913.

"Seeds secured from some locality in the north of Argentina. This species occurs from Tucuman northward to the Bolivian frontier, and possibly even beyond." (*Wight.*)

36600. LINUM USITATISSIMUM L. **Flax.**

From Bombay, Poona, India. Presented by Mr. William Burns, economic botanist. Received November 13, 1913.

"From Benares, United Provinces." (*Burns.*)

36601. MALUS sp. **Apple.**

From Tsingchowfu, Shantung, China. Presented by Rev. W. H. Hayes. Received November 6, 1913.

"*Lin-kin* apple. A species of crab apple which I found to make an admirable grafting stock. Seeds were secured from a perfectly ripe fruit which was grown in my garden from trees which I had set out for grafting purposes. It is not easy to get seed from the Chinese, as they almost always pull the fruit before it is ripe." (*Hayes.*)

36602. CASIMIROA EDULIS La Llave. **White sapote.**

From Pasadena, Cal. Presented by Mr. Knowles A. Ryerson. Received November 15, 1913.

"*Harvey.* Grown at Sierra Madre, Cal. It is the best variety growing in southern California at the present time. This particular tree is growing at the foot of the mountains in a soil which is pure, coarse, decomposed granite. It never receives irrigation of any description and but scant cultivation, yet bears enormous crops every year. The frost of last January (1913) caught a few of the blossoms only." (*Ryerson.*)

Distribution.—A tree found from the States of Sinaloa and Durango, in Mexico southeastward to Guatemala.

For an illustration of the fruit and leaves of the white sapote, see Plate III.

36603 to 36605.

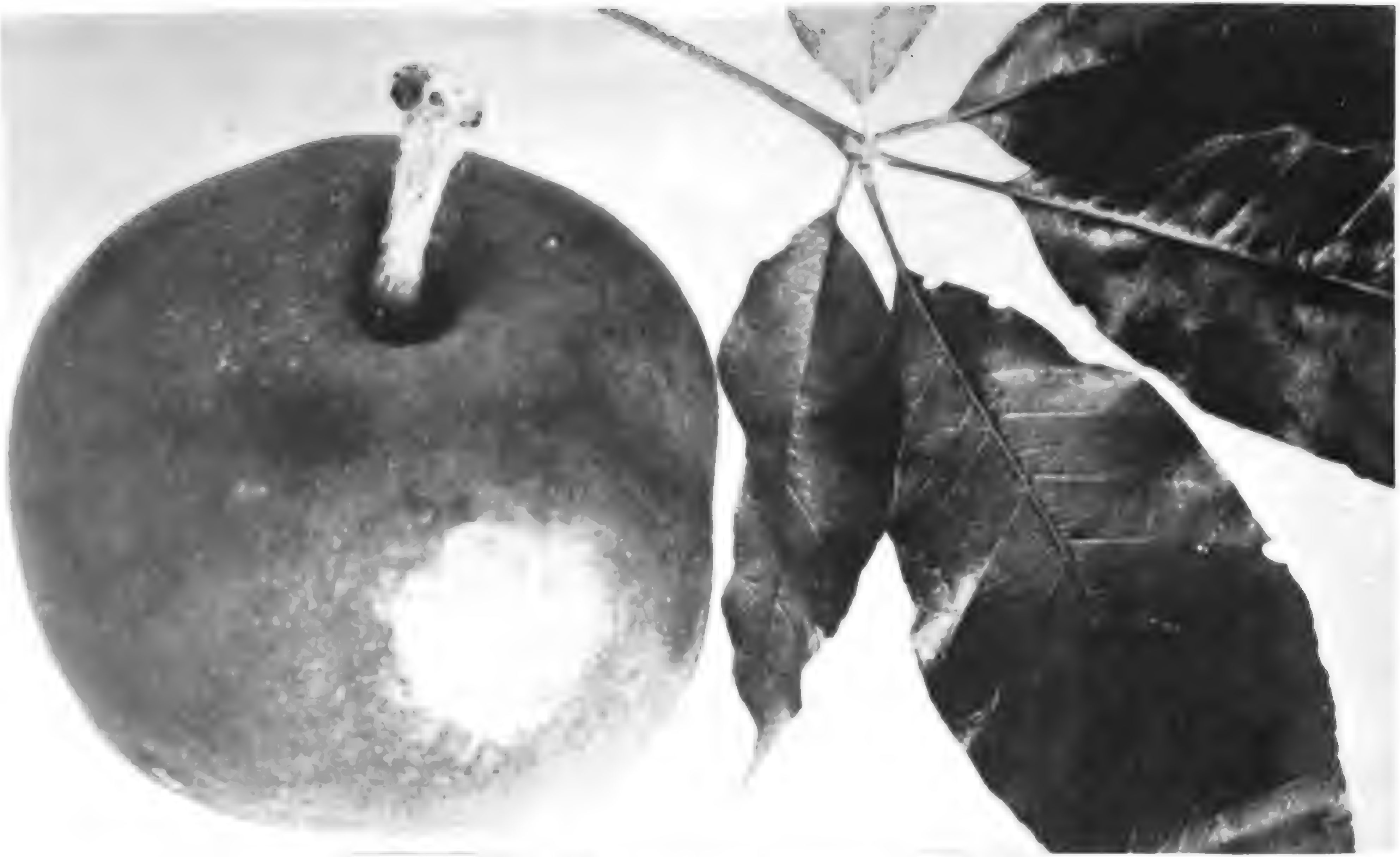
From Honolulu, Hawaii. Presented by Mr. Chester J. Hunn, assistant horticulturist, Hawaii Agricultural Experiment Station. Received November 17, 1913.

36603. PERSEA AMERICANA Miller. **Avocado.**
(*P. gratissima* Gaertn. f.)

(No. 149. Hawaii Agricultural Experiment Station.) "About 20 years ago Admiral Beardsley, leaving Guatemala for Hawaii, carried with him a number of avocados for consumption on the way. He saved two seeds, wrapping them in cotton-wool and packing them in ice. Arriving in Honolulu, he gave one seed to Judge Wiedeman and the other to Mrs. E. K. Wilder. The former was planted at 1402 Punahou Street, now occupied by the McDonald, and although both seeds grew, the *McDonald* is far superior in quality and blooms earlier.

"Form roundish to spherical; size medium to medium large; cavity small, shallow, and flaring; stem somewhat slender and very long, varying from 6 inches to 15 inches in length; surface undulating, very hard, coriaceous, and markedly pitted; color dark olive green to purple with small, very abundant irregular-shaped yellowish dots; apex a mere dot, slightly depressed; skin very thick and woody, separating freely from the pulp; flesh yellow in color, running into green at the skin, fine grained, oily, and somewhat buttery, 75 per cent of fruit; seed fairly large, roundish, conical, just a trifle loose in the cavity; flavor rich and nutty. Season July to January.

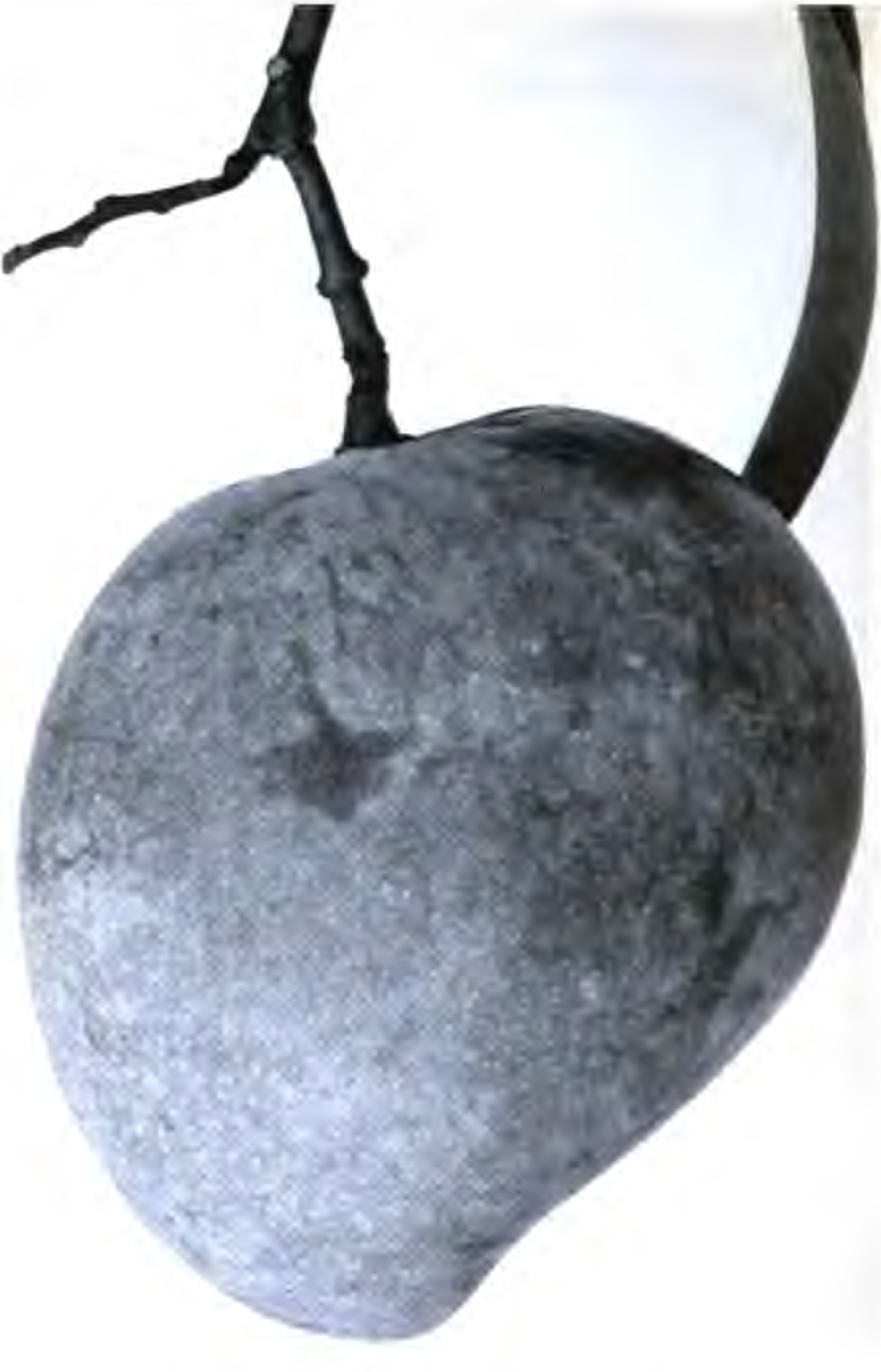
"The tree is quite vigorous, but tends to grow upward rather than to branch out, possibly due to confinement. This 'pear' is especially noteworthy, since it will keep for a long time after being removed from the tree. Mr. G. P. Wilder reports that he has kept the fruit for 2½ weeks after removal from the tree. The tree carried fruit over through the blossoming period of the following season. Height 40 feet, spread 20 feet.



FRUIT AND LEAVES OF THE WHITE SAPOTE (CASIMIROA EDULIS LA LLAVE).

Many people become fond of the characteristic bitter aftertaste of this otherwise very sweet fruit. The tree is a vigorous grower and quite frost resistant and deserves to be better known in Florida and California. Natural-size photograph (P7177FS), by E. L. Crandall, of fruit from Miami, Fla., July, 1910. See S. P. I. No. 36602 for a description of the Harvey variety.

by Google



THE ROSA MANGO OF BAHIA, BRAZIL. (S. P. I. NOS. 36688 AND 36841.)

This is one of the commonest named varieties in Brazil. It is of a very striking rich rose-red color, has a medium-sized stone, and is said to be of good quality. It reproduces itself from seed, ripens in December, and appears to be a free fruiter. Natural-size photograph (P15889FS), by Dorsett, Shamel, and Popenoe, Bahia, Brazil, December 15, 1913.

36603 to 36605—Continued.

"Valuable as a late avocado. Its woody skin, which is really a shell, is in its favor for shipping." (*Higgins, Hunn, and Holt, Bulletin No. 25, Hawaii Agricultural Experiment Station. The Avocado in Hawaii, p. 43.*)

Cuttings.

36604. PERSEA AMERICANA Miller. **Avocado.**

(No. 1035. Hawaii Agricultural Experiment Station.) "The nutmeg avocado. Fruit from the original [McDonald] avocado tree of the Guatemala or 'hard-shelled' type was collected in December, 1907. A seedling grown from this seed was placed in the orchard on March 17, 1908. This tree came into bearing in December, 1911, four years from seed.

"Form roundish to spherical; size medium; cavity small, shallow, and flaring; stem short and inclined to be thick; surface undulating, very hard; coriaceous and markedly pitted; color greenish purple to black, with very abundant, irregular-shaped yellowish dots; apex a mere dot, slightly depressed; skin very thick and woody, separating fairly well from the pulp; flesh yellow in color, running into green at the skin, fine-grained, a trifle juicy, oily, and somewhat buttery, 68 per cent of the fruit; seed large, roundish, flattened at the base, fitting tightly in the cavity; flavor rich and nutty. Season late. This tree is quite vigorous and is pyramidal in shape. Height 15 feet, spread 8 feet." (*Hunn, in Annual Report of the Hawaii Agricultural Experiment Station, 1912, p. 38.*)

Cuttings.

36605. CARICA PAPAYA L. **Papaya.**

"No. 2762. A type of papaya which bears two forms of fruit, round and oval. Mr. Higgins, in the papaya bulletin, calls these two types the *pentandra* and *elongata*." (*Extract from C. J. Hunn's letter dated December 4, 1913.*)

"The fruit of this type which I tested was of the round form and, though yellow and fully ripe, was so firm that it could scarcely be dented with the fingers. The flesh was rather thin but of very good quality." (*R. A. Young.*)

36606. PLEIOGYNIUM SOLANDRI (Benth.) Engler.

From Brisbane, Queensland, Australia. Presented by Mr. J. F. Bailey, director, Department of Agriculture and Stock. Received November 13, 1913.

"These seeds are from a tree growing here which has not fruited before for years." (*Bailey.*)

"A moderate-sized tree, the trunk occasionally acquiring a very great thickness. Timber soft when cut, though it afterwards becomes hard and tough. Diameter 24 to 36 inches, height 40 to 60 feet." (*Maiden, Useful Native Plants of Australia, p. 599.*)

36607. PRUNUS sp. **Plum.**

From Siberia. Presented by Mr. Ustin Gudjakoff, at the request of Mr. Frank N. Meyer. Received at the Plant Introduction Field Station, Chico, Cal., November 8, 1913.

"Yellow Ussurian plum, very hardy, and its fruits possess a fine characteristic aroma. Could be used in hybridization work to create perfectly hardy plums for cold regions." (*Extract from F. N. Meyer's letter, February 4, 1913.*)

36608. ALEURITES FORDII Hemsley. **Tung (wood-oil) tree.**

From China. Presented by Mr. J. L. Young, Chinese Agricultural Commissioner, Chicago, Ill. Received November 17, 1913.

"These nuts were gathered from the best oil-producing district in Szechwan Province. The trees are quite large, sometimes attaining a height of approximately 30 or more feet and a diameter of from 15 to 20 inches. The branches are spreading, the leaves are rather large, smooth, and more or less heart shaped. The tree thrives in many parts of China, but does best in the upper Yangtze Valley, and in some portions of the southern part of the country. The tree grew wild a few years back, when attempts were made to cultivate it. When cultivated, the kernels are planted in garden beds something like the nurseries in this country, and when the young plants become a foot and a half high, they are transplanted into a favorable location and soil about 20 feet apart each way, and the soil is kept well stirred between them until the trees come into bearing. Under favorable conditions the tree begins to bear at about three years, but in ordinary cases about four years are necessary to bring fruit." (*Young.*)

36609. RUBUS sp. **Raspberry.**

From New York. Presented by Dr. Ira Ulman. Received November 18, 1913.

"This plant resulted from a series of crosses of every sort of promising berry, both of European and domestic variety, I could obtain from abroad, some 212 (if my memory serves me rightly), the remarkable feature of which is that in flavor it partakes of the *Rubus idaeus* quality, in growth characteristics totally unlike any sort I know of. The canes in spring grow 3 to 4 feet and come into full fruit June 15, which of itself is an unusual feature, on laterals quite like other sorts. There is a very heavy crop till August, then these canes begin to wither; meanwhile, terminal buds start, as do new canes. These grow up straight 6 feet or more, and now on the terminal of the cane flowers from 50 to 125 in number appear, and from this on to frost these canes are covered with buds, blossoms, and unripe fruit. Frost finds them covered as above described, and literally thousands are frozen. The plants sucker so freely that I have counted 50 to one plant." (*Ulman.*)

36610 to 36616.

From Dodoma, German East Africa. Presented by Mr. W. Sperling, Kaiserliche Bezirksamtmann. Received November 13, 1913.

36610 to 36615. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

36610. "*Utwasimba.* Stems without sugar; grain suitable for making native beer and meal." (*Sperling.*)

"(C. I. 550.) Apparently a pink kafir with a rather slender 8-inch head, small pink seeds, and short black glumes." (*C. R. Ball.*)

36611. "*Ganvaii.* Stems give sugar; grain mostly used for native beer." (*Sperling.*)

"(C. I. 551.) A rather loose 10-inch head similar to *Planter* sorgo, but with medium-large, somewhat flattened white seeds and short brown glumes." (*C. R. Ball.*)

36612. "*Ndagumo.* Stems contain sugar; grain used in making meal and beer. Can also be eaten in a raw condition." (*Sperling.*)

"(C. I. 551.) A very compact oval-oblong pendent head with small yellowish-white seeds and short brownish-to-black glumes." (*C. R. Ball.*)

36613. "*Lugugu.* Edible stems; grain makes very good meal." (*Sperling.*)

"(C. I. 553.) Variety *roxburghii.* The typical lax panicle with open, yellow glumes and small yellowish white oval seeds." (*C. R. Ball.*)

36610 to 36616—Continued.

36614. "*Chiganzacha-Uwana.* Stems without sugar; grain gives good meal and beer." (*Sperling.*)

"(C. I. 554.) Variety *roxburghii.* Typical lax panicle with black, open glumes and large white seeds." (*C. R. Ball.*)

36615. "*Utwewampela.* Sugar-containing stems; grain used for flour and beer manufacture." (*Sperling.*)

36616. PENNISETUM GLAUCUM (L.) R. Br. **Pearl millet.**
(*P. typhoideum* Rich.)

36617. ACTINIDIA ARGUTA (S. and Z.) Planch.

From Fusan, Chosen (Korea). Presented by Mr. George H. Winn. Received November 14, 1913.

"A vine which bears very delicious fruits, and we enjoy sauce or preserves made of it very much. It closely resembles the guava of southern California in taste and consistency." (*Winn.*)

36618 to 36621. EUCALYPTUS spp.

Received from the Forest Service, Washington, D. C., November 19, 1913.

36618 and 36619. EUCALYPTUS CREBRA Mueller. **Iron-bark.**

36618. From Los Angeles, Cal. "This iron-bark is usually a slender tree of pleasing aspect, growing about 100 feet high and 2 to 3 feet in diameter. The trunk is commonly straight and even in size. According to Maiden, Sir William Macarthur pronounced it 'the most picturesque of the different species of eucalypts called iron-bark.' The bark, like that of other iron-barks, is rough and persistent. It is harder, darker, and more deeply furrowed than the bark of either *Eucalyptus paniculata* or *Eucalyptus siderophloia*, approaching closely to *Eucalyptus sideroxylon* in these respects. The wood is reddish, with inlocked fibers. The branchlets are slender and drooping, presenting with the foliage a pleasing appearance. The leaves are narrow, equally green on the two surfaces, and quite thin; veins and oil dots not conspicuous. The flowers are very small, in clusters of 3 to 7, usually occurring in panicles. The seed cases are very small, goblet shaped or cup shaped, with minute valves. The narrow-leaved iron-bark endures a greater variety of climatic conditions than do the other iron-barks. It is the only one of the group that will endure the climate of the dry, hot interior valleys of the Southwest. At Fresno, Cal., it grows vigorously, and young trees have grown well at the experiment station farm near Phoenix, Ariz. It endures minimum temperatures of 18° to 20° F. and maximum temperatures of 110° to 118°. It is said to be content with poor soil. Judging by experience with the species thus far, it ought to grow in most valley and hillside situations in the Southwest. On account of the wood being so hard, tough, and elastic, the timber is useful for a great variety of purposes. It is one of the highly valued timber trees of Australia. The wood is durable under ground, and is consequently much used for posts, railway ties, and piles. It is also useful for bridge material, for wagon making, and for a great variety of technic purposes." (*McClatchie, Bureau of Forestry Bulletin No. 35, Eucalypts Cultivated in the United States, 1902, p. 59.*)

36619. From Australia. Received August, 1910. The same species as S. P. I. No. 36618, but the seed received direct from Australia and not from California.

36618 to 36621—Continued.

36620. EUCALYPTUS GUNNII Hook. f.

From Australia. Received August, 1910. "The tree is usually not a tall one, but in some situations in Australia it is said to rise to a height of 250 feet. No trees growing in the Southwest, however, give promise of attaining a great height, though some of them are already 60 feet high. The trees are sometimes crooked and irregular in growth. In alpine regions they are said to be mere shrubs. The bark of the trunk is usually rough and brownish, and is continually flaking off, leaving the outer part smooth. The branches are usually smoother. The foliage is denser and darker than that of many eucalypts, frequently being confined to the ends of the branches, however. The leaves of the young trees are roundish, and opposite on the stem, and those of the adult tree are scattered and lance shaped. They are usually shiny and more or less stiff. The flowers are of medium size and the seed cases usually nearly top shaped. This species grows well near the coast and for some distance inland. It is a very hardy species, and, since in Australia it grows to an elevation of 4,000 to 5,000 feet, it ought to succeed in elevated regions of the Southwest. It endures fairly well the summer heat of the interior valleys, and during winter grows thriftily, even though the temperature fall to 20° F. each night. The tree does not furnish an especially useful timber. When it grows straight it is used by artisans for many purposes, and it also makes a fair fuel. It is a very promising species as a forest cover for mountain situations not subject to high summer temperatures. The sap of the alpine form of the tree is said to be used by the aborigines of Australia for making a kind of cider." (*McClatchie. Bureau of Forestry Bulletin No. 35, p. 64.*)

36621. EUCALYPTUS STUARTIANA Mueller.

From Australia. "The trees of this species never attain a very great size, but they make a comparatively rapid growth during the first 10 years, in some cases reaching a trunk diameter of 1 foot and a height of 30 to 40 feet during that period. The tree usually grows quite erect, with a somewhat stocky appearance. The bark of the trunk and main branches is rough and more or less fibrous. It is of a grayish-brown color outside and is salmon colored next the wood. The leaves of the young seedlings and of young suckers are opposite on the stem, and roundish or lance shaped, usually having a distinct bloom on the surface. The later leaves are scattered, lance shaped, or sickle shaped, shiny, and equally dark green on the two surfaces. When crushed they give forth a pleasant odor, somewhat resembling that of apples. The flowers are of medium size, usually in compact clusters of three to eight. The deciduous covering of the flower buds is cone shaped. The seed cases are rather small, and are commonly nearly top shaped. The species thrives at and near the coast, but does not do well in the dry, hot valleys of the interior. It endures minimum temperatures of 10° to 18° F., and it therefore may be planted in higher latitudes and at greater elevations than most species. Upon account of its resistance to frost, this eucalypt is useful for a forest cover, for windbreaks, and for shade in ravines and on fairly moist hillsides and mountains where, on account of too heavy winter frosts, other species would not thrive. The tree furnishes a timber that is hard, but, not being straight grained, is somewhat difficult to split. It is useful for fence posts and for fuel. According to Baron von Mueller, it is employed to some extent for furniture manufacture in Australia." (*McClatchie, Bureau Forestry Bulletin No. 35, p. 81.*)

36622. TRITICUM AESTIVUM L. **Wheat.**
(*T. vulgare* Vill.)

From Bogliasco, Italy. Presented by Dr. F. Franceschi. Received November 17, 1913.

"This is *Gentile rosso* (pale red) wheat. Among the varieties of grain cultivated most extensively in Tuscany the one named *Gentile rosso* stands out as typical. This seems to correspond to the *Triticum hybernum aristis carens spica*, or red grained, a variety of the broad species founded by Linnæus. The name *Gentile rosso* is not general in Tuscany, but this grain is known in various regions under various names, which causes confusion frequently. It is also called '*red calbigia*,' '*Sicilian calbigia*,' '*German calbigia*,' etc. These names refer in all cases to a grain having the following characteristics: With long spike unarmed or furnished with short rudimental remains [of awns], especially toward the top of the spike; with glumes slightly reddish; with medium-sized grains, lengthened, with deep median indentation, and brownish red integument (clear tobacco color); with straw rather large, robust, whitish. The *Gentile rosso* has medium development, good stooling, earliness of maturity, and all the good characters of high productivity." (*Translated from Grano da Seme Gentile Rosso, Amministraziono A. e M. di Frassineto, p. 5.*)

36623. PERSEA BORBONIA (L.) Spreng.
(*P. carolinensis* Nees.)

From New Orleans, La. Procured through Mr. Sam Marshall, superintendent, Audubon Park. Received November 7, 1913.

"A large tree with bark broken into flat ridges; leaf blades elliptic-oblong, 5 to 15 cm. long, often acuminate at both ends, bright green and lustrous above, glaucescent and finely reticulated beneath; sepals ascending, the inner ovate, 2 to 3 times longer than the outer, acutish; fruits obovoid or globose-obovoid, 1 to 1.5 cm. long, dark blue or nearly black, lustrous." (*Small, Flora of the Southeastern United States.*)

To be grown for hybridization purposes and for possible stocks for the avocado. Its slow growth may dwarf the avocado and its hardiness make it of value at the northern limit of avocado growing. (*Fairchild.*)

36624 and 36625.

From Brazil. Presented by Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, who received them from Mr. Murdo McKenzie, Sao Paulo, Brazil. Received November 19, 1913.

36624. SORGHASTRUM STIPOIDES (H. B. K.) Nash. **Jaragua grass.**
(*Chrysopogon avenaceus* Benth.)

"Makes a big stand of hay and is of succulent growth." (*Melvin.*)

For previous introduction, see S. P. I. No. 34699.

36625. MELINIS MINUTIFLORA Beauv. **Molasses grass.**

"It does not grow upright but more like a vine." (*Melvin.*)

For previous introduction, see S. P. I. No. 36051.

36626. BERBERIS HETEROPHYLLA Jussieu. **Barberry.**

From Chubut, Argentina. Collected by Mr. J. R. Pemberton, Buenos Aires, Argentina. Received November 17, 1913.

"An edible species of Berberis, occurring everywhere in the foothills of the Cordilleras. These seeds were collected at a latitude of 43° S. The fruits are blue in color and are about three-eighths of an inch in diameter. They are of sweet flavor, resembling Muscat grapes, and the juice is so blue that it stains the mouth like huckleberries. Its local name is *califata*, and Mr. Pemberton believes it will make an excellent hedge plant, growing about 4 feet high. It is extremely productive, and Mr. Pemberton has often sat down near bushes of these *califatas* and made a meal of these blue berries. This species should thrive in the Puget Sound region and along the coast of California, and possibly in the South Atlantic coast region. It should be tested also as far north as Philadelphia." (*Fairchild.*)

Distribution.—A low shrub found in southern Chile and southward to the Straits of Magellan.

36627. LILIUM sp.

From Soochow, China. Presented by Mr. N. Gist Gee, Soochow University. Received November 18, 1913.

"*Pah Woh.* The leaves have a thin skin over them; this is peeled off and the fleshy part is cooked in water. It should be planted in light soil and carefully cultivated. It, like the *San Yah* [S. P. I. No. 36629], is considered as very healthful, and the two are often sold together." (*Gee.*)

Bulbs.

36628. CARICA PAPAYA L. **Papaya.**

From Colombo, Ceylon. Presented by the American consul, Colombo. Received November 28, 1913.

36629. DIOSCOREA SATIVA L.

From Soochow, China. Presented by Mr. N. Gist Gee, Soochow University. Received November 18, 1913.

"*San Yah* [*Shan yao*]. This is grown in light clay soil and is used much as the sweet potato. It is used a great deal as food in the fall and is thought to have very decidedly beneficial effects upon one's health. It may also be used in soups with meat." (*Gee.*)

36630. LINUM USITATISSIMUM L. **Flax.**

From Geneva, Idaho. Procured from Mr. F. W. Boehme. Received November 20, 1913.

A variety adapted to high altitudes. Procured for experimental purposes by the Office of Cereal Investigations.

36631. DIOSPYROS KAKI L. f. **Persimmon.**

From Washington, D. C. Received, through Mr. S. A. Jones, from a tree growing on the grounds of Mr. Theodore Barnes, November 25, 1913.

"This tree is about 7 years of age and passed through a temperature of 14° below zero in 1911 with but slight injury." (*Peter Bisset.*)

Scions.

36632. ANNONA DIVERSIFOLIA Safford. **Ilama.**

From Tlatlaya, District of Sultepec, State of Mexico, Mexico. Presented by Mr. William Brockway. Received November 22, 1913.

"Seeds of the red-fleshed cherimoya. The natives here do not call this species either an anona or cherimoya; they call it *Ilama*." (*Brockway.*)

36633. CARICA PAPAYA L. **Papaya.**

From Costa Rica. Presented by Mr. A. M. Hicks, Chicago, Ill. Received November 24, 1913.

"Fruits especially large and fine; as large as three or four ordinary ones." (*Hicks.*)

36634 to 36638.

Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received December 27, 1913.

Quoted notes by Messrs. Dorsett, Shamel, and Popenoe, unless otherwise stated.

36634 to 36337. CITRUS spp.

36634. CITRUS NOBILIS DELICIOSA (Tenore) Swingle. **Tangerine.**

"(No. 27. Bahia, Brazil, November 28, 1913.) Tangerine. Twelve bud sticks of the *laranja cravo*, or tangerine, from select tree No. 5, in Dr. Fortunato da Silva's grove, Cabulla. For trial in California and Florida."

Bud sticks.

36635. CITRUS SINENSIS (L.) Osbeck. **Orange.**

"(No. 35. Bahia, Brazil, December 4, 1913.) Navel-orange bud sticks from plat 1, tree 8–6, grove of Col. Frederico da Costa, Matatu. One of the older trees, about 15 years of age; height 18 feet; spread 20 feet; circumference of trunk 23¾ inches; headed 11 inches from the ground; 4 main branches; dense foliage; dark-green color. There were no variations in the type of fruit observed. Navel very small. Very little mottle-leaf and very little gummosis. Very few and very small dead branches. This tree is one of the best types of navel oranges in the section of the grove in which plat 1 is located. There were 171 June-crop fruits and 8 December crop, making a total of 179. Should be tried in California for an improved type of navel orange."

36636. CITRUS AURANTIUM L. **Bitter orange.**

"(No. 23. Rio de Janeiro, Brazil, November 3, 1913.) Bud wood of the *laranja da terra*, from Shr. A. G. Fontes' ranch, Banca Velha, near Rio de Janeiro. This variety is most highly esteemed as a stock. The trees grow to large size, are very thorny, and show great vigor of growth. The leaves are distinguished by large winged petioles, an inch across. The fruits at this time are small, about one-half inch in diameter. The farm superintendent at Fontes' ranch says: 'This variety is a very fine stock for *Selecta*, *Pera*, tangerine, and other commercial varieties.' Trees of this variety should be tried in California for seed production for stocks. It should be given a very careful trial in all citrus districts in the United States for stock purposes."

36637. CITRUS SINENSIS (L.) Osbeck. **Orange.**

"(No. 37. Bahia, Brazil, December 4, 1913.) Navel orange from plat 2, tree 5–1, Col. Frederico da Costa's grove, Matatu. Height of tree 13 feet; spread 16 feet; height of head 11½ inches; number of main branches 3. Foliage dense and dark green. There were 85 June-crop fruits and 250 of the December crop, making a total of 335 fruits, evenly distributed through the tree. Navel very small and mostly rudimentary. Very little mottle-leaf or gum disease. Very little dead wood; small branches only. Tree about 8 years old and in very healthy and vigorous condition. Should be tried in California for an improved type of navel orange."

Bud sticks.

36638. ROSA LAEVIGATA Michx. **Rose.**

"(No. 25. Rio de Janeiro, Brazil, November 4, 1913.) A climbing shrub, reaching to the tops of large trees in a wild state; its stems armed with hooked spines. Leaves three-foliolate, brilliantly glossy green, and quite smooth; leaflets shortly stalked, oval or ovate, simply toothed, 1½ to 4 inches long, half as wide, of thick, firm texture. Flowers 3 to 6 inches

36634 to 36638—Continued.

across, pure white, fragrant, solitary, and borne on a very bristly stalk; sepals stout, 1 inch or more long, with leafy tips more or less bristly. Fruit red, three-fourths inch wide, somewhat longer, thickly set with bristles one-sixth inch long, the sepals persisting at the top for a long time.

"Native of China, but long naturalized in the southern United States, and first named in 1803 from specimens collected in Georgia by Pursh, the American botanist. How it reached America from China does not appear to be known, but it was cultivated in Georgia in 1780. Afterwards it received a multitude of names, the best known of which was '*sinica*.' Perhaps the most beautiful of all single wild roses when seen at its best, it is, unfortunately, too tender for the open air except in such places as Cornwall. Elsewhere it can only succeed in exceptionally sheltered sunny corners. A cross between this species and some other rose (perhaps a form of *indica*) is called 'Anemone.' This is hardy on a wall, and bears several large, lovely, blush-colored flowers in a cluster." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 432.*)

36639. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Khartum, Egyptian Sudan. Presented by the Director of Agriculture and Forests. Received October 11, 1913.

"*Dura sufa*, which was obtained from the White Nile Province."

36640 to 36642.

From Lawang, Java. Presented by Mr. M. Buysman, Jardin Botanique. Received November 22, 1913.

36640. CAYAPONIA sp.

"From Paraguay. With pretty, ornamental fruits." (*Buysman.*)

36641. COFFEA sp.

"From Rhodesia. Can perhaps be tried and crossed with other species." (*Buysman.*)

36642. IPOMOEA sp.

"From Argentina. With large rose flowers. (This species Kew can not trace.)" (*Buysman.*)

36643 to 36652. SOJA MAX (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

From Newchwang, Manchuria. Presented by Mr. George F. Bickford, vice consul. Received November 24, 1913.

Quoted notes by Mr. Bickford.

36643. "Large black beans, *Ta hei tou.* From Hsin Min-fu."

36644. "Large, round, black bean, *Ta lieh hei.* From near Hsin Min-fu."

36645. "Small black beans, *Hsiao heo tou.* From Hsin Min-fu."

36646. "Green soy beans, *Ching tou.* From Chang Chun, north of Mukden."

36647. "White eyebrow soy bean of the Fakumen meadow land."

36648. "White eyebrow soy bean, *Pei mei.* From Sze Ping Kai, northeast of Mukden."

36649. "Golden yellow soy beans, *Chin hwang tou.* From north of Mukden."

36650. "Yellow soy bean, *Hwang tou.* From Liao River valley."

36643 to 36652—Continued.

36651. "Golden round soy bean, *Chin yuan* or *Chin yuan tou*. From north of Mukden."

36652. "Yellow soy bean, *Yuan tou*. From Kung Chuling, south of Harbin. Round."

36653. SOJA MAX (L.) Piper. **Soy bean.**

(*Glycine hispida* Max.)

From Peh tuan lin tza, northern Manchuria. Presented by Mr. N. Kristiansen, at the request of Dr. S. A. Ellerbeck, Mukden Hospital. Received November 29, 1913.

"Manchurian bean, from Heilung chiang, northern Manchuria." (*Kristiansen.*)

36654. CITRUS LIMONIA Osbeck. **Lemon.**

From Barberton, Transvaal, South Africa. Procured from Harris & Todd. Received December 3, 1913.

"My brother-in-law spent several years at Barberton, in the Transvaal. He tells me that a neighbor has several wonderful lemon trees, which he calls 'Spanish lemon.' He says that the fruit is large, contains about a pint of juice, and the trees are very prolific, so much so that they break down if not propped. The fruit is almost seedless, with a thin, smooth skin; strongly acid." (*A. D. Shamel.*)

"Your description of the tree and fruit is quite correct (not the pint of juice). We have grown the fruit here 7 inches long and 4 inches through. They come fairly true to seed, but the majority are not so good as the variety kept true by grafting." (*Harris & Todd.*)

Bud sticks.

36655. PENNISETUM GLAUCUM (L.) R. Br. **Pearl millet.**

(*P. typhoideum* Rich.)

From Nyassaland, Africa. Presented by Mr. T. J. Treffry, assistant agriculturist, Government farm, Port Herald. Received December 3, 1913.

"Pearl millet, grown here; weight per acre about 8 hundredweight; planted in clumps about 3 feet apart each way. It is grown largely as a native food crop in the lower elevations and along the banks of the Zambezi." (*Treffry.*)

36656 to 36658. SOLANUM sp. **Potato.**

From Oruro, Bolivia. Presented by Mr. C. N. Mitchell, through Mr. W. F. Wight, of the Bureau of Plant Industry. Received December 3, 1913.

"Potatoes that have been handed to me by one of the natives here. From the region of Huailla-Marca, in the Province of Carangas, Bolivia, in the department of Oruro. These are not wild potatoes, but a kind which he recommends as suitable for your purposes." (*Mitchell.*)

Tubers.

36656. "(No. 2.) Color brown and shape oblong." (*Mitchell.*)

36657. "(No. 3.) Lead color. Namo *Ajahuiri*." (*Mitchell.*)

36658. (No notes.)

36659. CARICA PAPAYA L. **Papaya.**

From Barberton, Transvaal, South Africa. Procured from Harris & Todd. Received December 3, 1913.

36660. CUCUMIS MELO L. **Muskmelon.**

From Constantinople, Turkey. Presented by Mr. D. A. Davis, general secretary, Young Men's Christian Association. Received December 2, 1913.

"Seeds of a very delicious kind of muskmelon which we have in abundance in the early summer. They are oblong, with a smooth, yellow, very thin rind. The melons are very juicy." (*Davis.*)

36661. COUTAREA HEXANDRA (Jacq.) K. Schum.
(*C. speciosa* Aubl.)

From Puerto Bertoni, Paraguay. Presented by Mr. Guillermo F. Bertoni, Estacion Agronomica. Received December 3, 1913.

"*Quina de Pernambuca.* A pretty little tree which reaches a height of nearly 5 meters (17 feet) in good soil; in poor soil it attains a height of 2 to 3 meters (6 to 10 feet). As a medicinal plant its properties are similar to the Cinchona, and it is much used in Paraguay and Brazil. Besides its medicinal qualities, it is a pretty, ornamental plant, of good appearance, not very leafy, but with symmetrical branches. It loses its leaves in the winter, and in the spring, when it begins to bud, it is covered with pretty yellow flowers with a sweet perfume. It is originally from the wooded region of Paraguay and Brazil and is found frequently in stony soil on the high banks of rivers and ravines. It is a plant of the warm regions, but it resists cold fairly well. It stands a minimum temperature of 3 to 5° below zero C. (25° F.) perfectly, and it is quite probable that it could resist a lower temperature." (*Bertoni.*)

36662 to 36675.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received at the Plant Introduction Field Station, Chico, Cal., December 15 and 22, 1913.

Quoted notes by Mr. Meyer.

36662. JUGLANS REGIA SINENSIS C. DC. **Walnut.**

"(No. 1890a. Ying tau ko, Chihli Province, China. September 12, 1913.) A large variety of Chinese walnut, coming from an elevated locality, which, however, is much sheltered by mountains. To be tried especially in the lower Rocky Mountain valleys."

36663. JUGLANS REGIA SINENSIS C. DC. **Walnut.**

"(No. 1891a. Peking, China. October 15, 1913.) A large variety of Chinese walnut, coming from the mountains west of Peking. For trial in the lower Rocky Mountain valleys."

36664. AMYGDALUS DAVIDIANA (Carr.) B. S. and Z. **Wild peach.**
(*Prunus davidiana* Franch.)

"(No. 1892a. Peking, China. September, 1913.) About 1,500 pounds of wild-peach stones collected from cultivated trees in various parts of Chihli Province, China. As there is a great deal of variation among these seeds they may be graded according to size, the larger ones to be used as stocks for vigorously growing stone fruits, like peaches, apricots, and certain plums, while the smaller ones can be used as stocks for small, slow-growing stone fruits, as bush berries, sand cherries, dwarf plums, and almonds. A goodly portion of these seeds should also be devoted to testing against various diseases our stone fruits are suffering from, with the object of finding out whether they will be less susceptible to such diseases when grafted on this remarkably healthy wild peach."

36665. AMYGDALUS DAVIDIANA (Carr.) B. S. and Z. **Wild peach.**
(*Prunus davidiana* Franch.)

"(No. 1894a. Peking, China. July 25, 1913.) A very vigorously growing form of wild peach tree found in the well-trampled courtyard of the Chinese

36662 to 36675—Continued.

inn in Peking. Said to be a hybrid. The trunk, 5 feet above the ground, measures 5 feet 6 inches in circumference. Chinese name *Mau tau shu*, meaning 'hairy peach tree.' Not to be used for stock, but for seed-bearing purposes."

36666. CASTANEA MOLLISSIMA Blume. **Chestnut.**

"(No. 1893a. Peking, China. October 9 to 15, 1913.) About 250 pounds of Chinese chestnuts, said tò come from the Pang shan region to the northeast of Peking.

"This North China chestnut has no value as a lumber tree, being of a low-branching open-headed growth, while the tree does not grow tall, specimens over 40 feet in height being rare. It seems, however, much more resistant to the bark-fungus disease than the American chestnut, and it might be utilized in certain hybridization experiments to combine the good qualities of both the American and the Chinese parents into one tree. This chestnut loves a well-drained, decomposed granite soil, preferably at the foot of hills or of mountains; it also seems quite averse to strong winds and thrives best in well-sheltered valleys. In its native localities it is but little cultivated, the peasants being content to plant a few trees here and there along the bases of hills and on sloping fields, and the trees in general look much thriftier when close to rocks and bowlders than when seen on fairly level fields. From the nature of the tree and the climate in which it grows one might conclude that sheltered valleys in the foothill section of the Rocky Mountain region will probably suit this chestnut better than any other section in the United States, and some serious attempts should be made to establish it in these regions as a hardy nut-bearing tree."

36667. ZEA MAYS L. **Corn.**

"(No. 1895a. Peking, China. September 29, 1913.) A variety of flint maize, said to be of dwarf growth and of very early ripening habits, occupying the ground only from 8 to 10 weeks. Chinese name *To kwei boun tze*, meaning 'earliest of all maize.'"

36668. ZEA MAYS L. **Corn.**

"(No. 1896a. Hwai-lai, Chihli Province, China. July 30, 1913.) A dwarf-growing variety of white flint maize, of early ripening habits. Fit for regions with short growing seasons."

36669. ZEA MAYS L. **Corn.**

"(No. 1897a. Shih-men, Chihli Province, China. August 3, 1913.) An early-ripening variety of yellow-seeded flint maize, said to be of dwarf growth. Fit for regions with short growing seasons."

36670. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

"(No. 1898a. Hwai-lai, Chihli Province, China. July 30, 1913.) A variety of sorghum with reddish brown seeds borne in dense heads; growing not higher than 3 to 4 feet. Of value in regions with short growing seasons. Chinese name *Wu ta lang kaoliang*, meaning 'Tom Thumb sorghum.'"

36671. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

"(No. 1899a. Tan hwa, Chihli Province, China. September 1, 1913.) A dwarf variety of sorghum with large, dense heads and reddish brown seeds. Fit for regions having short growing seasons."

36662 to 36675—Continued.

36672. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

"(No. 1900a. Tan hwa, Chihli Province, China. September 1, 1913.) A dwarf variety of sorghum with large, dense heads and white grains. Fit for regions having short growing seasons."

36673. CHAETOCHLOA ITALICA (L.) Scribner. **Millet.**
(*Setaria italica* Beauv.)

"(No. 1901a. Tan hwa, Chihli Province, China. September 1, 1913.) A short-season variety of bird's millet having dense ears. Chinese name *Hsiao mi tze*. Fit for regions having short growing seasons."

36674. PANICUM MILIACEUM L. **Proso.**

"(No. 1902a. Tan hwa, Chihli Province, China. September 1, 1913.) A variety of proso of low growth, early ripening habits, and big yield. Fit for regions having short growing seasons. Chinese name *Huang mi*."

36675. AVENA NUDA Hoejer. **Oat.**

"(No. 1903a. Ta shiang yang, Chihli Province, China. August 1, 1913.) A good variety of hull-less oats, much cultivated in the higher mountain regions of northern China. A coarse flour is made from it, which is eaten in the form of noodles, dumplings, and cakes. Chinese name *Yu mei*. Especially worth trying in the intermountain sections of the United States. May be of great value to oatmeal manufacturers."

36676. PHOENIX DACTYLIFERA L. **Date.**

From Egypt. Brought over by Prof. S. C. Mason, of the Bureau of Plant Industry, who received it as a present from Sheik Abbes Mohammed Ahmed, Elsheikh Issa, Keneh, Egypt, November 1, 1913.

Mosque. "As the Arabic name, rendered 'The Date by the Land,' referring to its being a seedling tree growing by the border of a cultivated field, is an awkward one, I prefer to name this the *Mosque* date, as half of the fruit and offshoots of the original tree had been vowed to his mosque by the owner. The fruit is slightly softer than semidry and inclined to be a bit sticky. It is of medium size, yellow, ripening to amber brown, thin skinned, the flesh very rich and sugary, the seed small. I consider that it has no superior as a packing date among all Egyptian varieties." (*Mason.*)

Offshoot.

36677 and 36678.

From Peking, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received November 28, 1913.

36677. COLOCASIA sp.

"(No. 1036. Peking, China. November 3, 1913.) A dry-land taro, or dasheen, cultivated in North China. The Chinese call the large main corms 'males,' and these are considered much coarser than the cormlets, which are called 'females.' The latter are especially appreciated when served boiled and steamed hot with molten sugar over them. Chinese name *Uto* or *Yu tao*." (*Meyer.*)

"This variety is similar to those previously received from Japan and North China and is of a quality greatly inferior to some of those from warmer regions." (*R. A. Young.*)

36678. LILIUM sp. **Lily.**

"(No. 1040. November 3, 1913.) A Chinese lily, said to come from southern China. The scales are eaten boiled in soup, sweetened with honey or sugar, and this is considered a very fine dish. Chinese name *Pai gho*." (*Meyer.*)

36679. OLEA VERRUCOSA (R. and S.) Link. Wild olive.

From Wellington, Cape Province. Presented by Mr. C. W. Mally, entomologist, Department of Agriculture, Cape Town, Cape of Good Hope. Received December 5, 1913.

"These were gathered at Wellington, Cape Province." (*Mally.*)

For previous introduction and description, see S. P. I. No. 9559.

36680 to 36686. HOLCUS SORGHUM L. Sorghum.

(*Sorghum vulgare* Pers.)

From Victoria, Kamerun. Presented by Dr. Karl Ludwigs, director of the Experiment Station, at the request of the governor. Received December 2, 1913.

Quoted notes by Dr. Ludwigs.

36680. "No. 1. *Wuteguineakorn.* Native name *Mekossie.* Sample from Joko."

36681. "No. 2. *Fullahkorn.* Native name *Bakoa.* Sample from Joko."

36682. "No. 3. *Tikarkorn.* Native name *Mfonghuya.* Sample from Joko."

36683. "No. 4. *Andjiki* or *Teleri.* Sample from Ngaundere."

36684. "No. 5. *Djolomri.* Sample from Ngaundere."

36685. "No. 6. *Daneri.* Sample from Ngaundere."

36686. "No. 7. *Angom.* Sample from Ngaundere."

36687. PERSEA AMERICANA Miller. Avocado.

(*Persea gratissima* Gaertn. f.)

From Lagas, Mexico. Presented by Mr. Theodore C. Hamm, American consul, Durango, Mexico. These seeds were procured at the suggestion of Hon. Albert S. Burleson, Postmaster General. Received December 6, 1913.

"The fruits of the avocado, or aguacate, as it is locally called, grown in the Lajas district. After some little search and inquiry, aguacates were found which had been brought in from the very district named in the letter of the Agricultural Explorer in Charge [near the Indian village of Lagas in western Mexico. This village is described as being located on a small plateau of 4,000 or 5,000 feet elevation, near the Chico River, about 175 miles southwest of the city of Durango, and something like 100 miles from the coast]. The aguacate grows extensively throughout southern and southwestern Durango, and the fruit is highly prized locally. It is used chiefly in salads and as a substitute for butter. Large quantities are sold in the Durango market at prices ranging from 3 to 6 centavos (1½ to 3 cents, American currency) each." (*Hamm.*)

36688 to 36715.

Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received December 4 and 27, 1913.

Quoted notes by Messrs. Dorsett, Shamel, and Popenoe.

36688. MANGIFERA INDICA L. Mango.

"(No. 1. Rio de Janeiro, Brazil. October 25, 1913.) Bud sticks of the *Rosa* mango, from the nursery of Eickhoff, Carneiro Leão & C. This variety is said originally to have come from Bahia. The fruit is of good size, in shape very similar to the *Alfonso* of Bombay, the left shoulder more prominent than the right and the apex slightly beaked. The color is a bright golden yellow, with a red cheek. The flesh is said to be so free from fiber that it can be eaten with

36688 to 36715—Continued.

a spoon, and the flavor is said to be excellent. Its season here is December. It bears good crops here, in spite of a fungus which attacks the flower spikes."

See S. P. I. No. 36841 for another introduction and Plate IV for an illustration of the fruit of this mango.

36689. CITRUS SINENSIS (L.) Osbeck. **Orange.**

"(No. 38. Bahia, Brazil. December 4, 1913.) Navel orange from plat 2, tree 6-1, Col. Frederico da Costa's grove, Matatu. Tree 13 feet high, 15 feet spread, trunk 18¼ inches in circumference. Foliage dense and dark green. On it were 44 June-crop fruits and 327 of the December crop, making a total of 371 fruits. The fruits are very uniform and show little or no variation in type. Fruits very evenly distributed all through the tree. Navel very small in size. Very little mottle-leaf and very few small dead branches. Tree 8 years old. This tree is a very promising type of navel and should be given a thorough trial in California for an improved type of navel orange. The fruits are the best in quality in all respects of any of this variety yet tested here."

Bud sticks.

36690. MANGIFERA INDICA L. **Mango.**

"(No. 3. Rio de Janeiro, Brazil. October 25, 1913.) Bud sticks of the *Augusta* mango, from the nursery of Eickhoff, Carneiro Leão & C. This variety, like *Carlota*, is not considered as good as *Itamaraca*, though of larger size. Its season is December."

36691. CITRUS SINENSIS (L.) Osbeck. **Orange.**

"(No. 39. Bahia, Brazil. December 4, 1913.) Navel orange, plat 2, tree 11-1, Col. Frederico da Costa's grove, Matatu. Tree 11 feet high; 13 feet spread; circumference of trunk 13¾ inches; headed 16 inches from the ground. Foliage very dense; dark green in color. On it were 50 June fruits and 59 of the December crop, making a total of 109 fruits. In addition, we found many flowers, fruits just set, and very small, medium, and large fruits on this tree. The fruiting habit of this tree seems to tend toward production all the year round. For this reason this type should be tried in California with a view to securing a type which will fruit during a longer period than the Washington navel."

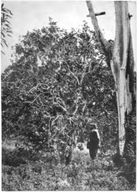
36692. CITRUS SINENSIS (L.) Osbeck. **Orange.**

"(No. 40. Bahia, Brazil. December 4, 1913.) Navel orange from plat 2, tree 8-4, Col. Frederico da Costa's grove, Matatu. Tree 13 feet high, spread 18 feet, circumference of trunk 20½ inches. Foliage very dense and dark green. On it were 262 June-crop fruits and 21 December-crop fruits; the latter, in this case, will probably not ripen until March or April, or even later. The entire crop of this tree could, without exception, be included in the June crop. This very great difference in habit of fruiting from neighboring trees led us to secure bud sticks for propagation, in the hope of securing a type of navel which will fruit in California at a different season from existing types. Very little gum disease or mottle-leaf and very few small dead branches. Tree 8 years old and in very healthy and vigorous condition."

For an illustration showing the manner of growth of the navel-orange tree and the ultimate size which it attains at Bahia, Brazil, see Plate V.

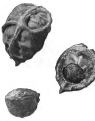
36693. ACROCOMIA SCLEROCARPA Mart. **Palm.**

"(No. 21. Rio de Janeiro, Brazil. November 4, 1913.) Fruits of a Brazilian palm, sold in the market here. The outer shell is removed and the firm, white flesh surrounding the seed is eaten."



AN OLD NAVEL-ORANGE TREE IN AN ORCHARD AT BAHIA, BRAZIL.

This illustration shows the ultimate height and size which navel-orange trees attain in this region. This orchard of Col. Barretto's at Cabulla is probably the oldest in Bahia. It was planted over 40 years ago and is still productive. Mr. A. D. Shamel, of the Brazilian Exploring Expedition, is shown at the right. Photograph (P14501FS), by Dorsett, Shamel, and Popenoe, December 13, 1913. (See S. P. I. No. 36692.)



FRUIT OF THE MU-YU, THE SOUTH CHINESE WOOD-OIL TREE (ALEURITES MONTANA (LOUR.) WILS.). (S. P. I. NO. 36897.)

A single seed and portions of a dried fruit, showing the characteristic ridges of the outer shell of the fruit, called by the southern Chinese the Mu-yu. This is a more tropical species than the Tung-yu (wood-oil) tree (*A. fordii*), but its oil is probably quite as valuable. Natural-size photograph (P12746FS), by E. L. Crandall, December, 1913.

36688 to 36715—Continued.

36694. Citrus aurantium L. **Bitter orange.**

"(No. 13. Rio de Janeiro, Brazil. October 30, 1913.) *Laranja da terra.* Bud sticks from the Catramby ranch, Banca Velha, near Rio de Janeiro. From a large, vigorous, and healthy tree. Should be propagated and fruited for trial as stocks in both California and Florida."

36695. Hibiscus mutabilis L.

"(No. 24a. Bahia, Brazil. November 12, 1913.) Seeds of a beautiful malvaceous shrub found in a garden near Barra, in the outskirts of the city. The plant is 15 or 18 feet high, with large, entire, light-green leaves, resembling those of the abutilon. The flowers are 4 inches in diameter, double; the color a beautiful rose pink. If not already grown in Florida, this plant is well worthy of a trial."

36696. Morus alba L. **Mulberry.**

"(No. 17. Rio de Janeiro, Brazil. November 1, 1913.) Cuttings of a mulberry growing on the property of Shr. José Elias Esteres, Rua Sao Gonçalo, in Nictheroy, across the bay from Rio de Janeiro. This appears to be the same variety as the one grown at the Catramby ranch, Porta d'Agua. We sampled a preserve made from the fruits of Shr. Catramby's tree, and it struck us as being different from the mulberries grown in the United States and of very good flavor. The fruit appears to be rather small, but the seeds are also small. It may prove of value for the manufacture of jams and preserves."

36697. Carica papaya L. **Papaya.**

"(No. 27a. Bahia, Brazil. November 27, 1913.) Seeds of the large-fruited papaya, called here *mamão da India.* The specimen from which these seeds were taken measured 11¼ inches in length and 5¾ inches in width at its broadest point. The flesh was 1¼ inches thick, bright orange color, and of rich, agreeable flavor, practically free from musky odor. This type is sometimes propagated by cuttings, according to Dr. Argollo Ferrão, in order to perpetuate choice strains. The fruits are prepared for eating by making four or five shallow incisions from base to apex and allowing the milky juice to run out; after standing for a day or two they are ready for the table. Should be grown in southern Florida, in connection with the papaya breeding work."

36698. Citrus grandis (L.) Osbeck. **Pomelo.**

"(No. 1a. Bridgetown, Barbados, British West Indies. October 10, 1913.) Grapefruit, purchased in the town of Bridgetown from one of the native women. The fruit cut contained 51 seeds; globular shape, smooth skin, dull ivory-white color; 12½ inches in circumference; flesh tender, no core, fairly juicy, good flavor; badly stained with black-scale smut. Its seedy character prohibits it from being of any special use in the United States unless as a stock for other citrus fruits. Twenty-four cents was paid for 12 fruits."

36699. Zea mays L. **Corn.**

"(No. 2a. Barbados. October 10, 1913.) Yellow flint corn, 14 rows, 38 kernels in a row, dry and sound; evidence of corn earworm attacks at end of cob but not in kernels; ears tightly inclosed by a heavy husk, which extends 1 to 2 inches beyond the end of the ear. Stalks about 4½ feet high, frequently two ears to the stalk. Mr. Shamel's estimate of the yield from the field where the sample was secured is 40 bushels per acre. Hills 4 by 4 feet; hand cultivation; dark, rich soil about 2 feet deep on coral rock. Seed corn dried in the husk on the ridges of houses and in trees. Secured on a return trip to St. John's Church. Corn usually planted from April to June, harvested from October to December.

36688 to 36715—Continued.

At this time (October 10, 1913) 25 to 30 houses were seen, on the comb or ridge of which were from 100 to 300 ears in the husk saved for seed. The ears were tied together by plaited outside husks, one ear on one side of the ridge and one on the other. In the trees the ears were tied in the same way and thrown across the limbs 15 to 20 feet from the ground. We saw the entire stalks fed to cattle on compost heaps. On a trip of 30 miles we saw fully 400 acres of corn. Mr. Shamel says, 'This appears to be an almost perfect meal corn, equal to what we have in the United States.'"

36700. Annona muricata L. **Soursop.**

"(No. 3a. Bridgetown, Barbados, British West Indies. October 10, 1913.) Seeds saved from a fruit purchased on the street. The fruit measured 9½ inches long and 15½ inches in circumference. It is oblong in shape and of a slightly greenish color; taste subacid; quality very good. For trial in southern Florida and in southern California."

36701. Citrus sinensis (L.) Osbeck. **Orange.**

"(No. 4a. Rio de Janeiro, Brazil. October 4, 1913.) Seeds from small or, rather, medium, somewhat oblong seedling oranges served on the table of the Hotel International. The fruit is golden yellow; flesh bright golden yellow; good quality, quite juicy; skin thin; two to eight or more seeds. It might be well to grow a few to try out in California and Florida."

36702. Myrciaria cauliflora (Mart.) Berg. **Jaboticaba.**

"(No. 5a. Rio de Janeiro, Brazil. October 24, 1913.) Among the fruit trees cultivated in gardens about Rio de Janeiro the jaboticaba is one of the commonest, and certainly one of the most beautiful. The largest trees are 30 to 40 feet in height and fully 40 feet in spread, with dense, dome-shaped heads of light-green foliage. The individual leaves vary in size according to the variety, some being 3 inches while others are not more than 1 inch in length; oblong-lanceolate in form, glossy, light green in color, usually pink in the young stage. The trunk of the tree is often very large, one specimen that we measured being 80 inches in circumference at the base, and it usually branches close to the ground. The bark is smooth, grayish brown in color, reminding one of the bark of the guava and other myrtaceous fruits.

"The name *jaboticaba* is a Tupi word, spelled by some authorities *jabuticaba;* this name is applied only to the fruit, the suffix '*eira*' being added to signify the tree, making the word *jaboticabeira*, or 'jaboticaba tree.' The name is usually pronounced here at Rio de Janeiro as though spelled ja-bu-ti-ca-ba, with the accent on the fourth syllable.

"The tree flowers here in May and June, and the fruit ripens in October and November. As signified by the specific name, *cauliflora*, the fruits are produced on the old wood, and we have seen many trees whose trunks were literally covered with fruits down to within 2 or 3 feet of the ground. The fruiting is not confined, however, to the large wood, but extends clear out to the ends of the smallest branches; the fruits are sessile or nearly so, and a tree covered with them from the ground to the ends of the small limbs presents a rather unusual appearance, to say the least.

"Four varieties are offered by the nurserymen here, but do not seem to be recognized by the people in the rural districts. They come from different parts of Brazil, and probably not more than one or two of them are in general cultivation here. Since they are supposed to come true from seed, it is quite possible that one or more of them may be entirely different species. Their names are *Sao Paulo*, *Murta*, *Coróba*, and *Branca;* the variety *Sao Paulo* may be

36688 to 36715—Continued

Myrciaria jaboticaba Berg, which, according to Barbosa Rodrigues, is commonly known as *jaboticaba de Sao Paulo.* Its foliage is much larger than the common jaboticaba which grows around Rio de Janeiro. *Murta* is said to be a large-fruited variety, but we have seen only young plants of it. *Coróa* we saw in fruit at a local nursery, and it seems to be the common local variety, which is described farther on. *Branca* (white) is a little-known, small-fruited variety.

"The fruits seen in the market here vary greatly in size, but otherwise seem to be about alike. A good specimen is an inch and a half in diameter, round or nearly so, and dark maroon-purple in color, greatly resembling in appearance some of the grapes of the *rotundifolia* type. This resemblance extends to the internal characteristics of the fruit as well, the texture of the flesh, its color and flavor, as well as the seeds, suggesting a grape more than any other temperate fruit. The skin is thick and very tough; it is broken by squeezing the fruit with the thumb and finger, when the pulp slides out into the mouth and the skin is discarded. The pulp is translucent, very juicy, and of a subacid, pleasant flavor, with a rather peculiar tang, which one is not sure to like at first, but which is very agreeable as soon as one becomes accustomed to it. The seeds, one to four in number, are rather large and adhere closely to the pulp; the boys here seem to swallow them, but this may not be a very desirable proceeding from a physiological standpoint. The Brazilians seem almost passionately fond of this fruit, especially the children, who spend hours at a time under the trees hunting for the ripe fruits and then working them off with a long pole if they are where they can not be reached.

"Following is a pomological description of the fruit as purchased in the Rio de Janeiro market and as seen growing in gardens around the city: General form slightly oblate to very broadly pyriform, with a majority of the specimens round or very nearly so; cross section regularly round; length three-fourths to 1½ inches, breadth three-fourths to 1⅝ inches; base of fruit in some cases slightly extended, in others slightly flattened; apex usually slightly flattened, with a small disk and vestiges of the four sepals; surface smooth, somewhat glossy to very glossy, color purplish maroon to maroon-purple when fully ripe; skin one-sixteenth inch thick, tough and leathery, and not easily broken, but separating readily from the flesh, which comes out in a body when the skin is broken; flesh translucent, whitish, jellylike in consistency, full of juice; flavor vinous, with a peculiar tang of its own; seeds normally four, but one to three sometimes abortive. Three seems to be the commonest number, but two is also common, and a few have been seen with five. Shape of seed oval to almost round, flattened laterally, three-eighths to one-half inch long, one-eighth inch thick; seed coats very thin. Practically no cultivation is given the trees we have seen, and we have heard of no other way of propagating them than by seed."

36703. AMYGDALUS PERSICA L. **Peach.**
(*Prunus persica* Stokes.)

"(No. 6a. Rio de Janeiro, Brazil. October 24, 1913.) One hundred and eighty seeds from small, inferior, but somewhat peculiar peaches purchased in the market. This peach is of a rather dirty green color, the flesh white, sometimes slightly tinged with red at the stone. The quality is poor, and there is little juice. Ninety per cent or more were infested with maggots. We have not seen the trees upon which peaches of this kind grow. They may be used for stocks or possibly for breeding."

36704. SOLANUM ACULEATISSIMUM Jacquin.

"(No. 8a. Rio de Janeiro, Brazil. October 23, 1913.) Five fruits secured along the roadside of the Tijuca Drive. They are from 1 inch to 1½ inches in

36688 to 36715—Continued.

diameter and bright red in color. The under sides of the leaves and the branches are quite thickly covered with rather long, sharp thorns. May prove valuable as an ornamental or for breeding."

36705. GREVILLEA BANKSII R. Brown.

"(No. 9a. Rio de Janeiro, Brazil. October 27, 1913.) In foliage this species greatly resembles its congener, *Grevillea robusta*, but its habit of growth is entirely different and its flowers much finer. The trees in the Rio de Janeiro Botanic Garden, from which these seeds were taken, are about 18 feet in height, broad topped, and rather open in growth. The bark is rough, and ashy brown in color. The wood is brittle. The leaves are 6 to 8 inches long, 5 to 6 inches wide, deeply divided, dull green on the upper side and silvery beneath. The flowers, which are borne on spikes 3 to 5 inches long, are a beautiful rose-red in color. May prove of value as an ornamental tree in Florida and southern California."

36706. HELICTERES OVATA Lamarck.

"(No. 10a. Rio de Janeiro, Brazil. October 27, 1913.) A sterculiaceous shrub growing in the Botanic Garden here, somewhat resembling an abutilon in general appearance. Leaves heart shaped, about 4 inches in breadth and 5 inches in length, lanate, bright green in color. The chief interest of this plant lies in its seed pods, which are about the size of almonds and twisted spirally. Should be tried in Florida and California."

36707. CITRUS AURANTIUM L. **Bitter orange.**

"(No. 11a. Rio de Janeiro, Brazil. October 29, 1913.) *Laranja da terra.* Seeds of the bitter orange, or *laranja da terra*, from Shr. Catramby's ranch at Porta d'Agua, a suburb of Rio de Janeiro. For trial in Florida and California as a stock for other citrus fruits, for which purpose it is used here."

36708. SCHINUS TEREBINTHIFOLIUS Raddi.

"(No. 28a. Bahia, Brazil. November 27, 1913.) Seeds of a handsome tree which grows wild along the roadsides here. It greatly resembles the species grown in California under the name of *Schinus terebinthifolius*, and may, in fact, prove to be the same thing. The leaves are deep rich green in color, the leaflets larger and less numerous than in *S. molle*. The berries are borne in rather compact clusters and are bright crimson in color. The tree is of different habit from *S. molle*, and is occasionally used as a hedge plant to good effect. It should be grown in south Florida and southern California."

36709. MYRCIARIA CAULIFLORA (Mart.) Berg. **Jaboticaba.**

"(No. 13a. Rio de Janeiro, Brazil. October 28, 1913. *Jaboticaba*, or *jabuticaba*. Seeds from selected large fruits out of the same lot as No. 5a (S. P. I. No. 36702). The fruits from which these seeds were taken were all an inch or more in diameter, and in most cases contained four seeds each."

36710. ZEA MAYS L. **Corn.**

"(No. 14a. Rio de Janeiro, Brazil. October 30, 1913.) *Catete* variety, grown on the Catramby ranch, Porta d'Agua, near Rio de Janeiro. Field about 20 acres, growing on bottom land and planted in rows 3½ feet apart, the hills checked about 3½ feet apart. Stalks about 8 feet high. Ears about 3 feet from the ground. Ears in silk at this time, usually one ear to the stalk. Cultivated by hand hoeing. Soil rich and black. The crop was planted about August 1 and will be ripe in January. The ranchman says that this is the only variety that does well in this vicinity. He says it can be planted at any time of the year and grows equally well at all times. The two sample ears are nubbins left

36688 to 36715—Continued.

over from the last crop, the ears in the field being 8 to 10 inches long, yellow flint, 12 and 14 rows. The kernels are hard, with a large proportion of horny endosperm and a large germ. Should be tried in Florida and other Southern States."

36711. ZEA MAYS L. **Corn.**

"(No. 15a. Rio de Janeiro, Brazil. October 30, 1913.) Red Peruvian corn purchased in a seed store here. Kernels very large, starchy."

36712. ZEA MAYS L. **Corn.**

"(No. 16a. Rio de Janeiro, Brazil. October 30, 1913.) White Peruvian corn purchased in a seed store here. Kernels very large, starchy."

36713. EUGENIA TOMENTOSA Cambess. **Cabelluda.**

"(No. 17a. Rio de Janeiro, Brazil. October 30, 1913.) The *cabelluda*, a myrtaceous fruit, native of Brazil. The tree is very handsome, with oblong, lanceolate, glossy leaves. The fruits are slightly less than an inch in diameter, oblate in form, orange yellow, the surface covered with a soft down, whence the name *cabelluda*, or hairy. The seeds are very large, one or two to a fruit, and leave but little room for the juicy pulp. The flavor is very peculiar, subacid, with the tang possessed by many of the eugenias. On the whole, the fruit is not one which would be likely to become very popular, but it is well worthy of a trial by those in Florida and California who are interested in rare fruits. From Shr. Catramby's garden at Porta d'Agua, near Rio de Janeiro, and at Nictheroy.

"This myrtaceous fruit, although a native of the State of Rio de Janeiro, is not commonly cultivated in gardens around the city, so far as we have seen. While an occasional tree is seen here and there, it can not compare in popularity with the jaboticaba or the pitanga, two allied fruits also native to this region. When well grown, the tree is very handsome, and would be of value as an ornamental alone. It reaches a height of 20 to 30 feet, with a broad, dome-shaped head of foliage. The leaves are 2 to 4 inches in length and about 1 inch in breadth, oblong-lanceolate, bright green and slightly tomentose above, dull green and tomentose below.

"The name *cabelluda* is the feminine of the Portuguese adjective *cabelludo*, and has reference to the downy tomentum present on both the leaves and the fruits. The tree flowers in June, and the fruits, which ripen in October and November, are sessile and produced on the small branches in great profusion. In general appearance the fruit somewhat resembles a gooseberry. The largest specimens are slightly under 1 inch in diameter, round or nearly so, the skin firm and thick. To eat the fruit one merely places it against his lips, squeezes it until the skin breaks and the seeds with the pulp surrounding them slide into his mouth. The pulp is rather scanty, but is juicy and of pleasant flavor, similar to the wild May-apple of the United States (*Podophyllum peltatum*). The large seeds are surrounded with short, coarse fibers, something on the order of the fibers surrounding the mango seed.

"The cabelluda is said to be tender and suitable only for culture in tropical countries, but it may prove to be adapted to southern Florida, and possibly to southern California as well. Both on account of its value as a fruit and its ornamental appearance it should be given a thorough trial in these regions.

"A pomological description of the fruit, as seen in various gardens around Rio de Janeiro, is as follows: General form round or slightly oblate; cross section round; length about three-fourths inch; width about three-fourths inch; base rounded; apex rounded, crowned by a small disk; surface smooth, downy, color

36688 to 36715—Continued.

golden yellow, with faint longitudinal lines under the skin, giving a ribbed appearance; skin thick and very tough, separating readily from the pulp, rather acid in taste; pulp translucent, yellowish white, aromatic, juicy, scanty in quantity; flavor subacid, suggesting the wild mandrake, or May-apple; agreeable when fully ripe; seeds one to two, surrounded by short fibers, elliptical to oval in form, slightly compressed, about three-eighths of an inch in length."

36714. CASSIA GRANDIS L. f.

"(No. 18a. Rio de Janeiro, Brazil. November 1, 1913.) Seeds of a large leguminous tree producing handsome pink and yellow flowers. Its seed pods are over a foot in length, plump, and very hard. The specimen from which these seeds were secured was growing by the roadside in Nictheroy, across the bay from Rio de Janeiro."

36715. CARAPA GUIANENSIS Aublet. **Andiroba.**

"(No. 20a. Rio de Janeiro, Brazil. November 3, 1913.) *Andiroba.* An Amazonian tree belonging to the Meliaceæ, used to good effect in the Rio de Janeiro Botanic Garden as an avenue tree. It grows to a height of 50 feet or thereabouts and has compound leaves 1½ feet in length, the individual leaflets 3 or 4 inches long, obtuse, and dark green in color. The fruits are the size of a baseball, russet brown on the exterior, thick shelled, dividing into four sections when ripe and exposing the large, brown seeds, somewhat similar in shape and appearance to chestnuts. Should be tried as an ornamental tree in southern Florida and southern California."

36716. PANAX QUINQUEFOLIUM L. **Ginseng.**

(*Aralia quinquefolia* Decne. and Planch.)

From Seoul, Chosen (Korea). Presented by Mr. George H. Scidmore, consul general. Received December 10, 1913.

36717. AMYGDALUS PERSICA L. **Peach.**

(*Prunus persica* Stokes.)

From Chosen (Korea). Presented by Mr. Alfred Welhaven, Unsan, Chosen. Received December 8, 1913.

"Peach bud wood from Pying Yang, where the best blood-red peaches grow." (*Welhaven.*)

36718 to 36810.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received November 28, 1913.

Quoted notes by Mr. Meyer.

36718. PRUNUS TRILOBA Lindl. **Plum.**

"(No. 1904a. Peking, China. July 23, 1913.) Collected from cultivated shrubs in the grounds of the German legation at Peking. A flowering plum much cultivated in gardens in North China in a great many varieties. The color of its flowers ranges from pale pink to a dark violet-rose, while as regards size, degrees of doubleness, profusion, difference in time of opening, and in lasting qualities, a very great variation exists."

36719. PRUNUS TRILOBA Lindl. **Plum.**

"(No. 1905a. Hsiao Wu tai shan, Chihli Province, China. August, 1913.) Collected from wild shrubs on the north slopes of mountains, at elevations of

36718 to 36810—Continued.

5,000 to 6,000 feet, where this flowering plum occurs in extensive thickets. May be of great botanical interest as the genuine wild type of a shrub which is extensively cultivated by the Chinese."

36720. PRUNUS TRILOBA Lindl. **Plum.**

"(No. 1906a. Near Shih-men, Chihli Province, China. August 3, 1913.) A large-fruited variety of flowering plum found growing in a loess cliff. Although sour and hard, it may be of value in hybridization experiments, for this wild plum seems very hardy and drought resistant."

36721. PRUNUS HUMILIS Bunge. **Plum.**

"(No. 1907a. Hsiao Wu tai shan, Chihli Province, China. August, 1913.) A wild, shrubby plum, not growing higher than 1 to 3 feet. Of value as a small shrub in rockeries and possibly as a factor in hybridization experiments. Chinese name *Noo li*, meaning 'ground plum.' This same species was sent in formerly under S. P. I. Nos. 20076, 20085, 20086, 20087, 20088, and 20342."

36722. PRUNUS sp. **Plum.**

"(No. 1908a. Near Nankou, Chihli Province, China. July 28, 1913.) Collected from very low shrubs on very stony places. A wild, shrubby plum, not growing higher than 1 to 3 feet. Of value as a small shrub in rockeries and possibly as a factor in hybridization experiments. Chinese name *Noo li*, meaning 'ground plum.'"

36723. PRUNUS PADUS L. **Cherry.**

"(No. 1909a. Hsiao Wu tai shan, Chihli Province, China. August 23, 1913). A bird cherry found in the mountains at elevations of 6,000 to 9,000 feet. Of tall, shrubby growth and very fruitful. Of value as a very hardy ornamental park and garden shrub for the colder sections of the United States.

"In Siberia the people eat the little cherries after they have been dried and pounded up with the stones, kernel and all, as stuffing in little cakes, and they taste quite aromatic."

36724. AMYGDALUS PERSICA L. **Peach.**
(*Prunus persica* Stokes.)

"(No. 1910a. Kalgan, Chihli Province, China. September 5, 1913.) A small but hardy peach cultivated in sheltered localities in the northern parts of Chihli Province. To be tested in the regions north of the peach belt proper."

36725. AMYGDALUS DAVIDIANA (Carr.) B. S. and Z. **Wild peach.**
(*Prunus davidiana* Franch.)

"(No. 1911a. Peking, China. September 18, 1913.) Some exceptionally large stones selected from among No. 1892a (S. P. I. No. 36664). To be planted for seed-bearing purposes in a locality congenial for this purpose."

36726. CORYLUS sp. **Hazelnut.**

"(No. 1912a. Hsiao Wu tai shan, Chihli Province, China. August, 1913.) A wild hazelnut of good quality, growing in dense thickets on the north slopes of mountains at elevations of 5,000 to 7,000 feet. The nuts grow in clusters and are surrounded individually by large, fringed involucres. Of value as a nut-bearing shrub for the cooler sections of the United States."

36727. CORYLUS sp. **Hazelnut.**

"(No. 1913a. Hsiao Wu tai shan, Chihli Province, China. August, 1913.) A wild hazelnut, occurring on the mountain sides at elevations of 5,000 to 9,000 feet. The nuts grow in clusters and are inclosed individually in long, beaklike involucres, which are covered with spiny hairs that easily find lodging between

36718 to 36810—Continued.

one's fingers and cause stinging sensations. Of value as a park shrub for the cooler sections of the United States."

36728. LARIX DAHURICA Turcz. **Siberian larch.**

"(No. 1914a. Hsiao Wu tai shan, Chihli Province, China. August 29, 1913.) A larch found at elevations of 5,000 to 10,000 feet in sheltered localities, growing up into a stately timber tree, but where exposed to winds and in the higher elevations remaining shrublike. Of value possibly as an ornamental park tree for the cooler sections of the United States. Chinese name *Tsai shu*."

36729. PICEA OBOVATA Ledeb. **Spruce.**

"(No. 1915a. Hsiao Wu tai shan, Chihli Province, China. August 21, 1913.) An ornamental blue spruce found on mountain slopes at elevations between 4,000 and 9,000 feet. Of value as an ornamental park and garden evergreen for the dry and cool sections of the United States. Apparently a slow grower."

36730. SORBUS sp. **Mountain ash.**

"(No. 1916a. Hsiao Wu tai shan, Chihli Province, China. August 8, 1913.) A very ornamental rowan, found on the north side of mountain slopes at elevations of 5,000 to 7,000 feet. Mostly seen in the form of a tall shrub with many branches. Bears a multitude of umbels of orange-red berries. Of value as a hardy ornamental park and garden shrub for the cooler sections of the United States."

36731. OSTRYOPSIS DAVIDIANA Decaisne.

"(No. 1917a. Hsiao Wu tai shan, Chihli Province, China. August 21, 1913.) A spreading shrub, growing to a height of 3 to 5 feet, very much resembling the hazelnut in habit and looks. Of value as a cover plant for banks and stony places. Said to be pretty when in flower."

36732. VIBURNUM OPULUS L.

"(No. 1918a. Hsiao Wu tai shan, Chihli Province, China. August 22, 1913.) A snowball bearing brilliant carmine-red berries in autumn. Of value as an ornamental shrub for the cooler sections of the United States."

36733. ACANTHOPANAX sp.

"(No. 1919a. Hsiao Wu tai shan, Chihli Province, China. August 29, 1913.) A spiny shrub, met with in mountain ravines at elevations of 7,000 to 9,000 feet. Of value as a park shrub for the cooler sections of the United States."

36734. ACANTHOPANAX sp.

"(No. 1920a. Hsiao Wu tai shan, Chihli Province, China. August 23, 1913.) A spiny shrub of more slender and open growth than the preceding, No. 1919a (S. P. I. No. 36733). Met with in mountain ravines at elevations of 7,000 to 9,000 feet. Of value as a park shrub for the cooler sections of the United States."

36735. RHAMNUS sp.

"(No. 1921a. Ying tau ko, Chihli Province, China. September 12, 1913.) A Rhamnus of dense growth, having small foliage and bearing large jet-black berries. This shrub does not grow tall, but is densely branched and assumes well-rounded forms when not mutilated. Of value as a garden and park shrub and as material for medium-sized hedges, especially for the drier sections of the United States."

36736. BERBERIS AMURENSIS Rupr. (?). **Barberry.**

"(No. 1923a. Hsiao Wu tai shan, Chihli Province, China. August 20, 1913.) A barberry of tall, gaunt growth, with large but very sparse foliage. Found

36718 to 36810—Continued.

among other scrub growth on stony mountain sides at elevations of 5,000 to 6,000 feet."

36737. BERBERIS CHINENSIS Poir. **Barberry.**

"(No. 1924a. Hsiao Wu tai shan, Chihli Province, China. August 28, 1913.) A barberry of low growth, 1 to 3 feet high, found between bowlders and rocks at elevations of 4,000 to 6,000 feet. Becomes very showy toward the end of the summer, when its berries, which are produced in great abundance, assume a bright coral-red color. Of value as an ornamental low shrub for rockeries and on stony places in the cooler sections of the United States."

36738. COTONEASTER sp.

"(No. 1925a. Hsiao Wu tai shan, Chihli Province, China. August 21, 1913.) A bush found on the north slopes of mountains at elevations of 5,000 to 6,000 feet. Of tall, expanding growth, ornamental in the fall with its multitude of soft red berries. Of value as a decorative park and garden shrub for the cooler sections of the United States."

36739. COTONEASTER MOUPINENSIS Franch.

"(No. 1926a. Hsiao Wu tai shan, Chihli Province, China. August 21, 1913.) A Cotoneaster growing into a tall shrub, having rather large, glossy leaves and bearing oval, blackish berries. Found on stony mountain slopes at elevations of 5,000 to 6,000 feet. Of value as a decorative park and garden shrub for the cooler sections of the United States."

36740. COTONEASTER sp.

"(No. 1927a. Hsiao Wu tai shan, Chihli Province, China. August 23, 1913.) A Cotoneaster of medium-tall growth. Leaves oval-round, tomentose beneath; berries depressed, of dark-violet color. Rare. One specimen found on a peaty place at an elevation of over 8,000 feet. Of value as a decorative park and garden shrub for the cooler sections of the United States."

36741. CORNUS sp.

"(No. 1928a. Hsiao Wu tai shan, Chihli Province, China. August, 1913.) A shrub growing to a height of 8 feet, well branched and of expanding growth. Leaves large, slightly hirsute underneath; berries borne in masses, turning bluish black when ripe. Found at elevations of 5,000 to 6,000 feet. Of value as a decorative park and garden shrub for the cooler sections of the United States."

36742. CORNUS sp.

"(No. 1929a. Hsiao Wu tai shan, Chihli Province, China. August 23, 1913.) A shrub growing to a height of 8 feet; well branched and of expanding growth. Leaves and fruits quite hirsute; berries borne in masses, turning bluish black when ripe. Found at elevations of 5,000 to 6,000 feet. Of value as a decorative park and garden shrub for the cooler sections of the United States."

36743. HIPPOPHAË RHAMNOIDES L. **Sea buckthorn.**

"(No. 1930a. Hsiao Wu tai shan, Chihli Province, China. August 28, 1913.) The sea buckthorn, which occurs along the seashore of northwestern Europe and throughout the higher parts of Asia. Of value as a hedge plant for the colder semiarid sections of the United States. Chinese name *Ta tzu ku chen.*"

36744. SAMBUCUS RACEMOSA L. **Elder.**

"(No. 1931a. Hsiao Wu tai shan, Chihli Province, China. August 5, 1913.) An elder growing into a medium-sized bush, bearing scarlet berries; is contented with poor, rocky soils. Of value as an ornamental park shrub for the cooler sections of the United States."

36718 to 36810—Continued

36745. SAMBUCUS WILLIAMSII Hance. (?) **Elder.**

"(No. 1932a. Near Shih men, Chihli Province, China. August 2, 1913.) An elder found mostly along the roadsides, generally cut back every winter for fuel. Of value for bank-binding purposes in semiarid sections. Chinese name *Wong pa tiao*."

36746. CARAGANA sp.

"(No. 1933a. Near Tan hwa, Chihli Province, China. September 2, 1913.) A Caragana found growing in rocks and on dry places, reaching a height of only 2 to 3 feet. Of value as a lining shrub along pathways or for use as division lines between blocks of nursery stock. Especially fit for the colder sections of the United States."

36747. COLUTEA sp.

"(No. 1934a. Near Tan hwa, Chihli Province, China. September 2, 1913.) A shrub of small dimensions, found in loess cliffs. Rare. Of use for bank-binding purposes in semiarid sections."

36748. LONICERA sp. **Honeysuckle.**

"(No. 1935a. Hsiao Wu tai shan, Chihli Province, China. August 23, 1913.) A bush honeysuckle of large growth and of decidedly ornamental habit. Leaves large, dark green, against which the bright-red berries stand out beautifully. These berries are borne in pairs on long, erect peduncles. Of value as an ornamental shrub for the cooler sections of the United States."

36749. LONICERA sp. **Honeysuckle.**

"(No. 1936a. Hsiao Wu tai shan, Chihli Province, China. August 14, 1913.) A bush honeysuckle of dwarf, sturdy growth, assuming characteristic outlines when not disturbed. Leaves small, round-elliptical, of light-green color, with buttressed veins underneath near the petiole; berries comparatively large, solitary, sessile, of opaque red color. This dwarf shrub is met with at elevations of 5,000 to 9,000 feet. Of value as an ornamental shrub for the cooler sections of the United States."

36750. LONICERA sp. **Honeysuckle.**

"(No. 1937a. Hsiao Wu tai shan, Chihli Province, China. August 13, 1913.) A bush honeysuckle of tall, rather open growth. Leaves large; these and the young branches quite shiny. Berries large, oval, orange-red, inclosed in large involucres, often two together. This shrub inhabits shady places in the high mountain regions. Of value as an ornamental shrub for the cooler sections of the United States."

36751. LONICERA sp. **Honeysuckle.**

"(No. 1938a. Hsiao Wu tai shan, Chihli Province, China. August 29, 1913.) A shrubby honeysuckle of spreading habits found on somewhat peaty soils at high elevations. The berries, of which two are grown into one, are borne on long peduncles, usually hidden by the glossy willowlike foliage. Of value as a ground cover on moist and peaty places in the colder sections of the United States."

36752. LONICERA CAERULEA L. **Honeysuckle.**

"(No. 1939a. Hsiao Wu tai shan, Chihli Province, China. August 23, 1913.) A bush honeysuckle found on moist and peaty places at high altitudes. Bears a multitude of large dark-blue berries, which are inedible when raw. Of value as a ground cover on moist and peaty places in the colder sections of the United States."

36718 to 36810—Continued.

36753. VITIS AMURENSIS Ruprecht. **Grape.**

"(No. 1940a. Hsiao Wu tai shan, Chihli Province, China. August 26, 1913.) A very hardy grape, found at elevations of over 5,000 feet. The fruits, though small, are edible. This species may be further developed and may also be used in hybridization experiments in trying to produce hardier grapes. Possesses value as an arbor and porch cover vine. For the colder sections of the United States."

36754. AMPELOPSIS ACONITIFOLIA Bunge.

"(No. 1941a. Hsiao Wu tai shan, Chihli Province, China. August 28, 1913.) A wild vine crawling over stony places. Of value as a porch and arbor vine, especially for the drier parts of the United States. Chinese name *Pa shan ghu*. Seeds from cultivated plants were sent formerly under S. P. I. Nos. 17938 and 17939."

36755. SCHIZANDRA CHINENSIS (Turcz.) Baillon.

"(No. 1942a. Hsiao Wu tai shan, Chihli Province, China. August 23, 1913.) A trailing vine of small growth, found between bowlders and rocks. Leaves not unlike those of *Actinidia kolomikta;* berries in small clusters, red, sour. Of use as a small porch and trellis vine for the colder sections of the United States."

Distribution.—The Provinces of Chihli, Kiangsu, and Shensi in China, and in Japan.

36756. RIBES sp. **Gooseberry.**

"(No. 1943a. Hsiao Wu tai shan, Chihli Province, China. August 23, 1913.) A wild gooseberry found between rocks and bowlders in the mountains at altitudes of 5,000 to 7,000 feet. Very well armed, even the berries themselves being covered with large spines. Of value possibly in hybridization experiments, trying to produce mildew-resistant varieties. Chinese name *Tzu li*, meaning 'prickly pear.'"

36757. DUCHESNEA INDICA (Andrews) Focke. **Yellow strawberry.**
(*Fragaria indica* Andr.)

"(No. 1944a. Hsiao Wu tai shan, Chihli Province, China. August 13, 1913.) A wild strawberry found on the north slopes of mountains and in alpine meadows at elevations of 6,000 to 9,000 feet. Fruits fairly large, of beautiful carmine-red color, of slightly elongated shape, with the seeds deeply embedded. Of use possibly in hybridization experiments. Chinese name *Tee ren tze*. This is the first time I have seen wild strawberries in North China."

36758. RUBUS sp.

"(No. 1945a. Hsiao Wu tai shan, Chihli Province, China. August 23, 1913.) A red-fruited, herbaceous bramble of nontrailing habits, growing only from 6 to 10 inches high, found on shaded places in the higher mountains at elevations of 7,000 to 10,000 feet. The fruits are quite large and juicy, though the seeds are too conspicuous and too bony. May be of value as a new garden fruit for the cooler parts of the United States. Chinese name *Lu tieh to*."

36759. RUBUS sp.

"(No. 1946a. Hsiao Wu tai shan, Chihli Province, China. August 23, 1913.) A red-fruited, low-growing herbaceous bramble, almost like the preceding number, 1945a (S. P. I. No. 36758), but with smaller fruits and less perceptible seeds, found in semishady places at altitudes of 5,000 to 7,000 feet. May be of value as a new garden fruit for the cooler parts of the United States."

36718 to 36810—Continued.

36760. Incarvillea sinensis Lam.

"(No. 1947a. Near Fangshan, Chihli Province, China. July 31, 1913.) An ornamental biennial, having large carmine-rose colored flowers arranged on long spikes. Of value as a garden plant for the drier sections of the United States. A well-drained soil, not too rich, seems to suit it best. Through selection this plant possibly might be made an annual. Chinese name *Hong la pa tsui yang hua.*"

36761. Ligularia sp.

"(No. 1948a. Hsiao Wu tai shan, Chihli Province, China. August 12, 1913.) A large-leaved Ligularia, growing between rocks and bowlders along running watercourses. Flowers yellow, borne in flat, divided racemes. Of value as an ornamental herbaceous perennial along water expanses in parks, especially in the cooler sections of the United States. Collected at elevations of 5,000 to 7,000 feet."

36762. Ligularia sibirica (L.) Cass.

"(No. 1949a. Hsiao Wu tai shan, Chihli Province, China. August 29, 1913.) A large-leaved Ligularia, found growing between rocks and bowlders along watercourses and on moist places at altitudes of 7,000 to 11,000 feet. Of value as an ornamental herbaceous perennial along water expanses in parks, especially in the cooler sections of the United States."

36763. Scutellaria sp.

"(No. 1950a. Hwai lai, Chihli Province, China. July 30, 1913.) A species of skullcap bearing large racemes of deep-blue flowers. The plants love stony situations and are of dwarf growth. Of value as a rocky plant for the cooler sections of the United States."

36764. Lychnis coronata Thunberg.

"(No. 1951a. Hsiao Wu tai shan, Chihli Province, China. August 20, 1913.) A perennial Lychnis with brick-red flowers, found among scrub growth on gentle mountain slopes. Of value possibly as a showy plant for the hardy border."

36765. Iris ensata Thunberg. **Iris.**

"(No. 1952a. Kalgan, Chihli Province, China. September 5, 1913.) A vigorously growing strain of *Iris ensata*, grown in gardens around Kalgan, where the leaves are used as an ever ready and handy garden tying material. Of special value for the drier sections of the United States for the above purposes and as a lining plant along paths and roads. Chinese name *Tsiao ma lien.*"

36766. Asparagus dauricus Fisch. **Asparagus.**

"(No. 1953a. Peking, China. September 27, 1913.) An asparagus found growing wild on the city wall of Peking. Of erect growth. The young shoots are collected by the Chinese and eaten boiled as a vegetable. Of value possibly in breeding experiments and for bank-binding purposes in semiarid regions."

36767. Asparagus sp. **Asparagus.**

"(No. 1954a. Fengtai, near Peking, China. September 10, 1913.) A wild erect-growing asparagus, found on a sandy bank. Of value possibly in breeding experiments and for bank-binding purposes in semiarid regions."

36768. Asparagus sp. **Asparagus.**

"(No. 1955a. Near Hui yau pu, Chihli Province, China. September 2, 1913.) A wild upright-growing asparagus, found in a loess bank. Of value possibly in breeding experiments and for bank-binding purposes in semiarid regions."

36718 to 36810—Continued.

36769. Asparagus trichophyllus flexuosus Trautv. **Asparagus.**

"(No. 1956a. Nankou, Chihli Province, China. July 28, 1913.) A wild asparagus found on a clayey ridge. Of value possibly in breeding experiments and for bank-binding purposes in semiarid regions. An ornamental garden plant, especially for the drier sections of the United States. The branches of this species of asparagus are bent in a peculiar zigzag manner."

36770. Brassica oleracea caulo-rapa DC. **Kohl-rabi.**

"(No. 1957a. Kalgan, Chihli Province, China. September 5, 1913.) A very large variety of kohl-rabi, weighing when fresh 16 pounds. This variety thrives especially well in the vicinity of Kalgan, where occasionally specimens are obtained weighing up to 25 pounds. The official Chinese name of this variety is *Man ching p'yi liang*, meaning 'globular kohl-rabi.'"

36771. Raphanus sativus L. **Radish.**

"(No. 1958a. Hwai lai, Chihli Province, China. July 29, 1913.) A Chinese winter radish, said to be of good flavor. There are red and green ones among this lot of seeds. Chinese name *Tsui loba*. See former notes for uses and for cultivation (S. P. I. No. 31697)."

36772. Raphanus sativus L. **Radish.**

"(No. 1959a. Hwai lai, Chihli Province, China. July 29, 1913.) A long, white, autumn radish, said to be of good quality. Chinese name *Pai loba*."

36773. Beta vulgaris L. **Chard.**

"(No. 1960a. Hwai lai, Chihli Province, China. July 29, 1913.) A Chinese variety of Swiss chard, called *Tien ts'ai* or *Ching da*. The fleshy midribs are used fried in oil, either alone or with meat. Able to withstand a fair amount of alkali in the soil."

36774. Capsicum annuum L. **Red pepper.**

"(No. 1961a. Kalgan, China. September 5, 1913.) A large, fleshy variety of chili pepper, used scalded with meats. Chinese name *Sze ssu la tze*, meaning 'persimmon pepper.' As the soil around Kalgan is quite alkaline and the climate semiarid, this and the following varieties of pepper may thrive well in those parts of the United States where similar conditions are experienced."

36775. Capsicum annuum L. **Red pepper.**

"(No. 1962a. Kalgan, China. September 5, 1913.) A medium-large pepper, more pungent than the preceding number, 1961a (S. P. I. No. 36774), but used in similar culinary ways. Chinese name *La tze*."

36776. Capsicum annuum L. **Red pepper.**

"(No. 1963a. Kalgan, China. September 5, 1913.) A beautiful elongated variety of chili pepper, mostly dried and kept for winter uses. Chinese name *Chang la tze*, meaning 'long pepper.'"

36777. Capsicum annuum L. **Red pepper.**

"(No. 1964a. Kalgan, China. September 5, 1913.) A long, slender variety of chili pepper, quite pungent; used as a condiment; also dried for winter use. Chinese name *Hsien la tze*, meaning 'thread pepper.'"

36778. Cucurbita maxima Duch. **Squash.**

"(No. 1965a. Kalgan, China. September 5, 1913.) A large, ribbed winter squash of yellow color with green blotches. Chinese name *Hsi ghu lu*, meaning 'western squash.' Of value especially for the semiarid sections of the United States. Stands a fair amount of alkali."

36718 to 36810—Continued.

36779. Cucurbita maxima Duch. **Squash.**

"(No. 1966a. Hwai lai, Chihli Province, China. July 29, 1913.) An edible squash or gourd, used stewed, as a vegetable. Chinese name *Yu kua*. Of value especially for the semiarid sections of the United States."

36780. Nicotiana rustica L. **Tobacco.**

"(No. 1967a. Tie ling tze temple, Hsiao Wu tai shan, Chihli Province, China. August 25, 1913.) A coarse variety of tobacco cultivated in the temple garden, at an elevation of 5,000 feet. Chinese name *Hsiao yea yen*. For nicotine-content tests."

36781. Brassica pekinensis (Lour.) Skeels. **Cabbage.**

"(No. 1968a. Kalgan, China. September 5, 1913.) A Chinese early winter cabbage having light-yellow heart leaves. Called *Huang ya pai ts'ai*. For cultural information, see former notes on the Chinese cabbage (S. P. I. No. 36113)."

36782. Brassica chinensis Jusl. **Cabbage.**

"(No. 1969a. Kalgan, China. September 5, 1913.) A Chinese summer cabbage having heavy white midribs, which are cut in inch-long pieces and eaten fried, either alone or with meat, or boiled in a soup made from dried shrimps, giving all these dishes a very appetizing flavor. Chinese name *Chiang ghan pai ts'ai*."

36783. Brassica pekinensis (Lour.) Skeels. **Cabbage.**

"(No. 1970a. Hwai lai, Chihli Province, China. July 29, 1913.) A large variety of winter cabbage, said to be of good quality. Chinese name *Tung pai ts'ai*, meaning 'winter cabbage.'"

36784. Medicago ruthenica (L.) Trautv. **Alfalfa.**

"(No. 1971a. Near Tan hwa, Chihli Province, China. September 2, 1913.) A wild alfalfa of spreading and semiascending growth; found in all sorts of open spaces. Flowers of dark yellowish color, pods short and flat, borne in little clusters, springing open and scattering their seeds when ripe. On very dry and exposed places the plants make but small growth, but where found in moist places and between grasses they supply quite a mass of herbage, which is eagerly eaten by all grazing animals. This alfalfa is found at elevations of 2,000 to 8,000 feet, making a much more abundant growth in the higher mountain regions than on the lower plains. Of decided value as a forage plant on ranges and grazing grounds. Might be found valuable enough even to be grown in congenial localities for hay and for green fodder. Chinese name *Ye mu shu*, meaning 'wild alfalfa.'"

36785. Soja max (L.) Piper. **Soy bean.**

"(No. 1972a. Peking, China. September 29, 1913.) The original wild soy bean, which occurs in North China here and there in hedges, copses, between shrubbery, and between reeds (*Phragmites communis*) on the drier places, where it turns itself around any support available. The beans are blackish and very small and are inclosed in small pods, which are quite hairy, though looking typically like some of the smaller cultivated varieties of soy beans. The poorest of the Chinese eat the young pods when boiled, but the plant at large is considered a weed and is gathered only when large quantities are found, in which case it is fed to domestic animals as a fodder. Of value possibly as a fodder plant when sown out among erect-growing vegetation, like barnyard millet, Johnson grass, and corn. Chinese name *Mau doh*, meaning 'hairy bean.'"

36718 to 36810—Continued.

36786. VICIA sp. **Vetch.**

"(No. 1973a. Hsiao Wu tai shan, Chihli Province, China. August 23, 1913.) A vetch of tall growth, making much herbage, found among scrub. Of value possibly as a forage plant for the cooler sections of the United States."

36787. VICIA sp. **Vetch.**

"(No. 1974a. Hsiao Wu tai shan, Chihli Province, China. August 12, 1913.) A vetch of tall growth, but producing less herbage than the preceding number, 1973a (S. P. I. No. 36786); found at an elevation of 6,000 feet. Of value possibly as a forage plant for the cooler sections of the United States."

36788. GERANIUM sp. **Crane's-bill.**

"(No. 1975a. Near Pau an tchou, Chihli Province, China. September 3, 1913.) A biennial crane's-bill found here and there on the banks of ditches; produces an immense mass of herbage, which is eagerly eaten by horses, mules, and donkeys. Probably valuable enough to be grown as a forage supply, especially in the western United States, and more specifically as a winter crop in the Pacific coast region. Sow out in late summer or early fall."

36789. ERODIUM sp. **Crane's-bill.**

"(No. 1976a. Near Hui yau pu, Chihli Province, China. September 2, 1913.) Found on sandy and pebbly places, producing much herbage, especially when the nights become cool. Is eagerly browsed by all domestic animals. Apparently identical with No. 1884a (S. P. I. No. 36117). These remarks therefore apply to it also."

36790. ASTRAGALUS sp.

"(No. 1977a. Near Tan hwa, Chihli Province, China. September 2, 1913.) Found on dry loess banks; has but scanty foliage, but produces a mass of fine stems, which bear slender racemes of bluish white or white flowers. Of value possibly as a soil binder in semiarid regions, and perhaps for forage purposes."

36791. STIPA sp.

"(No. 1978a. Near Tan hwa, Chihli Province, China. September 2, 1913.) A bunch-grass found on clayey ridges. The leaves and stalks are very tough and the latter are used to make strong brooms. Might possibly be of value in the manufacturing of strong paper, and could be grown in the cooler parts of the semiarid belt in the United States. Chinese name *Tchi tchi*."

36792. AGROPYRON sp.

"(No. 1979a. Hsiao Wu tai shan, Chihli Province, China. August 27, 1913.) A vigorously growing grass, found in shaded places at altitudes of 5,000 to 8,000 feet. Of use possibly for grazing purposes."

36793. ELYMUS DAHURICUS Turcz.

"(No. 1980a. Hsiao Wu tai shan, Chihli Province, China. August 29, 1913.) A tall grass with heavy, erect stems, found on fertile flats in the mountains at elevations of 7,000 to 9,000 feet. Of use possibly for grazing purposes."

36794. ELYMUS SIBIRICUS L.

"(No. 1981a. Hsiao Wu tai shan, Chihli Province, China. August 29, 1913.) A tall grass with heavy, overhanging heads, found in great masses on fertile flats in the higher mountain regions at altitudes of 6,000 to 9,000 feet. Of value possibly for grazing purposes."

36718 to 36810—Continued.

36795. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

"(No. 1982a. Near San kia tien, Chihli Province, China. September 11, 1913.) A tall-growing white-seeded variety of sorghum, often producing several heads as side shoots. Its productivity, however, is not as great as the varieties that bear only one panicle."

36796. CHAETOCHLOA ITALICA (L.) Scribner. **Millet.**
(*Setaria italica* Beauv.)

"(No. 1983a. Kalgan, China. September 5, 1913.) A prolific variety of bird millet grown on the somewhat alkaline soils around Kalgan. Chinese name *San pien huang goo tze*, meaning 'thrice-changing yellow small millet.'"

36797. ARTEMISIA sp. **Wormwood.**

"(No. 1984a. Peking, China. October 18, 1913.) A biennial wormwood, occurring as a weed in all sorts of dry waste places. The Chinese utilize this plant as a stock to graft chrysanthemums upon and claim that the chrysanthemums thus grafted are earlier, need less water and no manure, are more easily lifted and transplanted, and in general require far less care than when on their own roots. To obtain the best results, the Chinese sow the seed in late summer in well-drained beds. The seeds germinate quickly, but the plants make very little growth during the autumn and winter. When spring comes, however, they develop with great vigor, and in June they have well-formed stems. The Chinese then cut off the main stem an inch or so from the ground and graft a chrysanthemum scion upon it by the ordinary cleft-graft method. No wax is used, but only a small strip of fiber, while the plants are shaded during the first days. The stock and the scion soon unite and continue to grow vigorously. On very strongly developed specimens of the stock the main branches are often used to insert on every one a different variety of chrysanthemum or to train a beautiful 'standard' tree of it, and some of such specimens are fully as good as the plants seen at home exhibitions of chrysanthemums. This previously described method of grafting chrysanthemums might prove to be valuable for the sections of the United States where the summers are somewhat too short or the nights too cool to rear the plants successfully out of doors, like, for instance, the more elevated parts of the Rocky Mountain States.

"Care has to be taken to water the plants sparingly when lifted and planted in flower pots. The Chinese name of this Artemisia is *Ghau tze*."

36798. THLADIANTHA DUBIA Bunge.

"(No. 1985a. Peking, China. October 7, 1913.) An ornamental perennial cucurbit, with scarlet fruits the size of small hens' eggs. Chinese name *Tze kua*."

36799. SCHIZONOTUS SORBIFOLIUS (L.) Lindl.
(*Spiraea sorbifolia* L.)

"(No. 1986a. Peking, China. October 11, 1913.) A variety of the ordinary sorbus-leaved spiræa, which grows well in Peking, thriving even in well-trampled inner courtyards, where soil conditions certainly are unfavorable to plant growth. Remains in flower, more or less, from the end of June until the end of September. Of value especially as an attractive shrub for back yards in our cities and as a garden shrub for semiarid sections of the United States. Sow out on peaty soil and keep in a shady place."

36718 to 36810—Continued.

36800. NITRARIA SCHOBERI L.

"(No. 1987a. Near Tientsin, China. July 16, 1913.) A densely branching hardy shrub of spreading habits. Has small bluish green leaves and bears small berries, which change from light green through red into a violet black. Found growing on strongly alkaline flats. Of value possibly as a soil and sand reclaimer for alkali regions. Collected and presented by Mrs. Mary Clemens, wife of the Rev. Joseph Clemens, chaplain to the 15th Regiment, United States Infantry, at Tientsin, China. Received on October 19, 1913."

36801. CRATAEGUS PINNATIFIDA Bunge. **Hawthorn.**

"(No. 1988a. Peking, China. October 8, 1913.) A large-fruited variety of Chinese edible haw; for selection and for stocks. See previous introduction, No. 1841a (S. P. I. No. 35641)."

36802. PYRUS sp. **Pear.**

"(No. 1989a. Peking, China. October 8, 1913.) A very small pear of russet color, with a long peduncle. Becomes quite soft and mushy after having been kept in a room for a couple of weeks; quite different from the small variety of *Pyrus sinensis*, which remains hard and shriveled up. Obtained at a fruit stand in Peking; probably collected from wild trees."

36803. MALUS sp. **Crab apple.**

"(No. 1990a. Peking, China. October 8, 1913.) A Chinese crab apple, the size of a large cherry, of dark-purple color; of fine flavor when made into a compote. Apparently very hardy and of value for the semiarid sections of the United States when grafted on the Siberian *Malus baccata*, which is very drought resistant. Chinese name *Ghae tang kuo*."

36804. PRUNUS SALICINA Lindl. **Plum.**

"(No. 1991a. Kalgan, China. September 8, 1913.) A variety of plum of wine-red color and said to be as large as an apple, coming from Yu tchan, western Chihli Province, China. Obtained from its collector, Mr. Rusted, of the British American Tobacco Co., at Kalgan. Of value possibly for the cooler sections of the United States."

36805. AMYGDALUS PERSICA L. **Peach.**
(*Prunus persica* Stokes.)

"(No. 1992a. Peking, China. October 15, 1913.) A peculiar pointed variety of winter peach of white color. Flesh hard, but sweet; skin covered with a dense, felty down, which can be scraped off and looks like short wool."

36806. AMYGDALUS PERSICA L. **Peach.**
(*Prunus persica* Stokes.)

"(No. 1993a. Kalgan, China. September 8, 1913.) A very large variety of clingstone peach, coming late in the season; of good quality, though not very sweet. Probably imported from Shantung Province."

36807. AMYGDALUS DAVIDIANA (Carr.) B. S. and Z. **Wild peach.**
(*Prunus davidiana* Franch.)

"(No. 1994a. Peking, China. October 23, 1913.) A variety of the *davidiana* peach, of fastigiate growth, trees becoming 50 to 60 feet high. Of value as an appropriate tree for cemeteries and other places where some dignity of outline is required. Suitable especially for the drier sections of the United States. As pyramidal trees in general do not come true from seed, only a small percentage of the trees from these seeds may be expected to be of a correct columnar shape, while the bigger part will be all sorts of intermediate types."

36718 to 36810—Continued.

36808. Diospyros lotus L. **Persimmon.**

"(No. 1995a. Peking, China. October 22 to 29, 1913.) Twenty thousand seeds of the wild persimmon from North China; to be used as stocks for cultivated varieties of persimmons, especially for the drier parts of the United States."

36809. Soja max (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

"(No. 1996a. Peking, China. October 30, 1913.) A rare, brown and black striped variety of soy bean, used roasted as a delicacy. Very wholesome, apparently, and worthy of trial by the American public. Could be slightly salted and buttered and sold like pop corn and peanuts. Chinese name of this bean *Ghu pee doh*, meaning 'tiger-skin bean.'"

36810. Albizzia julibrissin Durazz. **Silk tree.**

"(No. 1997a. Peking, China. October 24, 1913.) The so-called silk tree, a beautiful little tree with feathery foliage and delicate rosy flowers, which are borne in large masses. Withstands drought, dry heat, and a fair amount of alkali quite successfully, and thrives to perfection in the rather uncongenial climate of North China. Of value as an ornamental garden and park tree, especially for the sections of the United States where the summers are dry and hot and the winters not too severe. Produces an especially fine effect when planted in a row or in a scattered group in some prominent place. Can also be used as a shade-giving tree on tea plantations, as is being done at Chakva, near Batoum, in the Caucasus, where by this method the picking season is considerably extended. This North China form may possibly be hardier than the types at present cultivated in America, as suggested by Prof. Sargent, director of the Arnold Arboretum."

36811 to 36813.

From the Sudan. Presented by Gov. H. W. Jackson, of Merowe, Dongola Province, through Prof. S. C. Mason, of the Bureau of Plant Industry. Received December 9, 1913.

Quoted notes by Prof. Mason.

36811 and 36812. Allium cepa L. **Onion.**

"From northern Amalad, Amer Island, near the fourth cataract of the Nile. Taken from the ground in May and early June (our Sacaton and Texas dates of harvest), they are now (September 21) about as hard as baseballs. They are not mild flavored by any means, and an onion with such keeping qualities in this intense heat is surely a find. These people sow the seed in beds in October or November, and transplant to the growing beds in February. I think the Imperial Valley, Yuma, and Indio would be the correct places to try out this seed."

36811. "Dongola onion, red." **36812.** "Dongola onion, white."

"There are three quite distinct types, but a round one with a pure white color and of medium size is regarded as the best."

36813. Dodonaea viscosa (L.) Jacq.

"Seed of a plant received from the gardens of the governor at Merowe. A very interesting hedge plant, which is beautifully dense and green, responds to the shears perfectly, and when taken in hand early makes a perfectly compact wall clear to the ground. This shrub was found at Erkowit, near Suakin, in the hill country of the Sudan, under conditions which suggested that it might be native there, but its presence was probably due to some remote importation.

36811 to 36813—Continued.

as this species is pretty generally distributed throughout the tropical world. The shrub is called *tattas* by the natives. The governor is not sure whether it will endure any degree of frost, but thinks it may. The seedling plants form a rather deep taproot and must be transplanted with some care on that account. This is one of the most perfect tropical hedge plants I have ever seen."

36814. ARTEMISIA MARITIMA L. **Wormseed.**

From Russia. Presented by Mr. John H. Grout, American consul at Odessa. Received November 29, 1913.

"In only one part of the country (Tashkend) was I able to secure the seed, and there it was in the hands of one firm. This firm has a small plantation a long distance away, where the seed is raised in small quantities.

"Russian pharmacists obtain their supplies of the flower buds from central Asia, where on some of the dry hillsides the plants grow in great profusion and without any sort of cultivation. There it is richest in the volatile oil and in santonin, for which it is valued. The same variety of plant is also found in parts of Persia and Asia Minor and, I believe, also in places in Hungary. It seems to thrive best in semiarid climates with a superabundance of sunshine and a certain brackishness of soil. It would doubtless grow well in some parts of the southwestern portion of the United States on calcareous loess and on the outskirts of salt marshes. Whether a plant which grows wild in other places and only needs to be collected could be grown with great profit in the United States may be open to doubt." (*Grout, extracts from letters dated April 14 and November 8, 1913.*)

"*Artemisia maritima* L., is a very variable species, and two varieties which are known as *A. cina* Berg and Schmidt, and *A. pauciflora* Weber are usually regarded as the source of the so-called Levant wormseed, or santonica, of the Pharmacopœia. The commercial supply of santonica comes largely from Turkestan, but the harvests of three successive years, 1909 to 1911, proving a failure, considerable interest has been aroused in the possibility of producing this drug in other countries." (*W. W. Stockberger.*)

36815 to 36817.

From American Samoa. Presented by Commander C. D. Stearns, Governor of Samoa. Received December 10, 1913.

36815. MANGIFERA INDICA L. **Mango.**

"Mango seeds taken from fruits grown in these islands." (*Stearns.*)

36816. DIOSCOREA sp.

Tuber.

36817. PERSEA AMERICANA Miller. **Avocado.**
(*Persea gratissima* Gaertn. f.)

"Seeds taken from fruits grown in these islands." (*Stearns.*)

36818 to 36828. PHOENIX DACTYLIFERA L. **Date.**

From Dongola, Sudan, Africa. Offshoots collected by Prof. S. C. Mason, of the Bureau of Plant Industry. Received December 17, 1913.

Quoted notes by Prof. Mason.

"It is generally acknowledged that the four date varieties of importance in this Province were originally brought up the river from the Sukkot district, a very inaccessible region between the second and third cataracts of the Nile, now included, for administrative purposes, in Halfa Province, with the capital at Wadi Halfa. John Lewis Burkhardt, in his account of his travels in Nubia in 1813, mentions the excellence of the dates of Sukkot and says that the merchants of Merowe brought commodities in exchange for them, their own country having but few dates and those of bad quality. Dongola Province is now the great date-producing region, and the people are alive to the value of the offshoots and are planting every one they can get, offering none for sale. The great source of supply is the Sukkot country, already mentioned, where the industry has declined from the going out of the young men and on account of the difficulties of transportation. The three important varieties recognized in both districts are *Barakawi*, *Gondeila*, and *Bentamoda*."

36818. "*Bentamoda*. No. 1. The find which is worth the whole journey is the *Bentamoda*, a Sukkot variety which is very rare. A man of consequence may have two or three trees. The gift of an offshoot to a friend is a mark of distinction. I was at once told by both Governor Jackson and his head gardener that one could not by any means go out and buy a stock of these. I really think the *Bentamoda* variety ranks with the *Deglet Noor* and *Menakher*. The stone is small and clean, and the fruit has the appearance and flavor to give it a place in the first rank. It was learned from the Omda of Aswan that the *Bartamoda*, or *Sukkota*, of which a few trees may be found near Aswan, is identical with this variety, the first name being a modification of *Bentamoda* and the second given in reference to the district from which the offshoots were obtained. Aaronsohn secured a few offshoots under the name 'Bartamoda' in 1911."

36819. "*Bentamoda*. No. 2."

36820. "*Bentamoda*. No. 3."

36821. "*Bentamoda*. No. 4."

36822. "*Bentamoda*. No. 5."

36823. "*Bentamoda*. No. 6."

36824. "*Bentamoda*. No. 7."

36825. "*Bentamoda*. No. 13."

36826. "*Barakawi* is the great food staple and export date and is said to reach Cairo under the name *Ibrimu*, though there may be a distinct variety of this name. It is 2½ inches long or longer, narrow, tapering from base to apex; dull purplish red; it dries bone hard, but is sweet and of a wheaty flavor; said to resist the weevil and to keep two or three years. The people say that these dates put in a tightly closed vessel of water a day or two become as good as fresh dates and that the water makes a very pleasant drink. Governor Jackson informs me that this date is much sought as a food supply by pilgrims journeying to Mecca, on account of its excellent carrying and keeping qualities."

36827. "The *Gondeila* (as these people have it), or *Jendila*, is an oblong or oval, blocky date, antimony yellow (Ridgway, xv), ripening to a chestnut brown. It is a semidry date as it ripens, but exposed to the sun for two hours each day it is made quite dry. It must, however, be carefully guarded against weevils. It reaches Cairo only on special orders or as presents. It is one of the varieties offered to guests as a sweet. When sold, an ardeb of 320 pounds brings here about 154 piasters (a piaster is about 5 cents). This variety is worth importing and is common enough, so that a fair supply can probably be obtained."

36828. "*Kulma*. A very soft, sticky date when first mature, but becomes firmer when cured in the sun. The fruit is 2¼ to 2⅝ inches long and 1¼ to 1⅜ inches broad; dull yellow, ripening to a rather dull, unattractive brown. The skin is a bit thick and the flesh soft and rich, but with a lot of tough rag. It is a date worth trial, but not equal to the *Bentamoda*, though reminding one in a way of the *Tafilelt*. The people explained that this variety should never be planted on land near a river bank, but well inland, in a dry situation. Then the fruit cures without spoiling."

For full notes on these date varieties, see "Dates of Egypt and the Sudan," by S. C. Mason, Bulletin No. 271, U. S. Department of Agriculture, 1915.

36829 to 36840.

From Pying Yang, Chosen (Korea). Presented by Mr. Charles L. Phillips, Presbyterian Mission. Received December 10, 1913.

Quoted notes by Mr. Phillips.

36829 to 36837. Soja max (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

"The soy bean in Korea is usually sown in the fields with millet. In the early spring, after the millet has reached the height of 2 or 3 inches, the beans are dropped in between the hills of the grain, all of which is sown in rows and cultivated with the Korean ox plow. Beans of this kind produce best in heavy clay soil rather than in light, stony ground. These beans serve as food for man and beast and are used most extensively throughout this whole northern country. For man, bread and cake are baked with these beans, a sloppy cereal dish is cooked, and, of course, everywhere soy is made. Especially with the yellow varieties, bean sprouts are grown during the winter, which furnish a fresh vegetable dish for the people at a time when green things are scarce. The beans are put in an earthen dish and daily sprinkled with water and kept in the warm living room of the house, where they are quickly sprouted and send long shoots out from the dish. These sprouts are a great relish. They are boiled and eaten with rice and millet. For fodder, the beans are fed in the pod to the cattle and horses, but in cold weather are most often boiled and fed as a hot mash."

36829. "No. 1. Yellow. This is the most common of all soy beans in Korea."

36830. "No. 2. Small yellow." **36831.** "No. 3. Black."

36832. "No. 4. Green. These beans are also roasted and popped like our pop corn or like roasted chestnuts. A great favorite among the Korean children."

36833. "No. 5. Brown. Rarely grown in northern Korea."

36834. "No. 6. Brown and black."

36835. "No. 7. Black and yellow."

36836. "No. 8. Mottled green and black."

36837. "No. 9. Black with white spots. Called sometimes in this province 'widowers' beans.'"

36838 to 36840. Phaseolus angularis (Willd.) W. F. Wight. **Adzuki bean.**

36838. "Gray mottled. Long pods, with seven or eight beans in one pod. Used extensively in northern Korea. Boiled and eaten as a cereal. Planted with millet; yields best in heavy loamy soil."

36839. "Yellow. Long pods, with seven or eight beans in one pod. Used extensively in northern Korea. Boiled and eaten as a cereal. Planted with millet; yields best in heavy, loamy soil."

36840. "Red. Soap is made from this variety."

36841 to 36845.

From Bahia, Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received December 18, 1913.

Quoted notes by Messrs. Dorsett, Shamel, and Popenoe.

36841. MANGIFERA INDICA L. **Mango.**

"(No. 26. November 20, 1913.) Bud wood of the variety called *Manga da Rosa*, or *Rose mango*, from the orchard of Dr. Miguel de Teive e Argollo, at Roma, on the outskirts of Bahia.

"*Manga da Rosa* is one of the commonest named varieties of the mango, both here and at Rio de Janeiro. The name seems to be applied to seedling trees in many cases. On investigation we find that the seed is polyembryonic, which leads to the belief that the variety may in reality be a seedling race or type, like the No. 11 of the West Indies and Florida, and like this race maintain its characteristics, even when grown from seed.

"The fruits of this variety are of good size and ripen here in December and January. At the present time they are almost full grown. The form is somewhat similar to that of the No. 11 mango, broad at the base, with the stem inserted to one side, making the left shoulder full and high, while the right shoulder is falling. The apex is rather pointed, with a rather prominent beak about one-half inch above the longitudinal center of the fruit. Both cheeks are distinctly compressed and are overspread with rich rose-red, a very attractive and striking color. The seed is medium in size and those we have examined contained from five to eight embryos. The flavor and quality are said to be very good, and the trees seem to be carrying better crops of fruit than in the case of other varieties. This mango should be given a thorough trial in Florida, both to determine its value as a fruit and to throw more light on the fruiting habits of the polyembryonic mangos, which seem to be an especially promising class."

See S. P. I. No. 36688 for a previous introduction and Plate IV for an illustration of the fruit of this mango.

36842. BAUHINIA sp.

"(No. 22a. November 9, 1913.) Seeds collected from a tree growing on the Rua Victoria, near No. 61. This small tree, 18 to 20 feet high, bears very pretty light-pink flowers and long, brownish pods. It is seen quite often in the yards here in the city. It is possible that this species is already in the United States. It should be propagated and tried, as it might prove quite distinct."

36843. OPERCULINA TUBEROSA (L.) Meissn.

"(No. 23a. November 9, 1913.) Seeds of a supposed Ipomoea. An old gate and posts near 71 Rua Victoria are covered with a strong-growing woody vine that has been almost completely killed, on account of street-improvement work. The seed pods, which are very large and characteristic of those of our morning-glories, contain from one to four, rarely five, large velvety black seeds. A leaf of which we made a rough pencil sketch is 7 lobed. We were unable to find a flower. For propagation and test in California and Florida."

36844. CARICA PAPAYA L. **Papaya.**

"(No. 25a. November 12, 1913.) Seeds of an interesting variety of the *mamão*, or papaya, obtained in the market at Bahia. The fruit is oblate in form, 4 inches long, and 5 inches wide. It would be an ideal size for shipping. The quality is good, but the seed cavity is rather large. Should be tried in southern Florida."

36841 to 36845—Continued.

36845. Cucumis melo L. **Muskmelon.**

"(No. 26a. November 12, 1913.) Seeds of a large melon grown at Joazeiro, on the Sao Francisco River, 250 miles inland from Bahia. This melon is 10 inches long and 5 inches in diameter, straw colored, and heavily ribbed. The flesh is light salmon color, with a pronounced musky flavor; of fair quality. It might prove of value in parts of the arid Southwest."

36846 to 36848. Soja max (L.) Piper. Soy bean.
(*Glycine hispida* Maxim.)

From Dalny, Manchuria. Presented by Mr. Albert W. Pontius, American consul. Received December 10, 1913.

"A large variety of beans is grown in Manchuria, and together with their resultants, bean cake and bean oil, they constitute by far the most valuable item in the export trade of the three provinces. In the month of April they are sown by hand in drills and the crop is ripe in September; but as regards the beans of commerce there is an exception, namely, the small green bean known as *Lu tou* (*Phaseolus aureus* Roxb.), which ripens as early as July and can be sown again in that month and gathered early in October. The Chinese distinguish the beans of commerce by their colors. At the end of March or beginning of April the ground fertilizer (night soil and animal manure) is spread over the fields in the furrows in which the previous season's beans were cultivated. The soil in the old ridges is then turned with the ordinary shallow native plow, the new ridges being formed where the fertilizer has been spread. The ground is broken with a wooden roller drawn by a mule, the tops of the ridges being partly leveled. A line marker is then used on the leveled ridges, this implement marking a shallow trench, preparing the ground for seeding purposes.

"The planting of beans in Manchuria takes place during the month of April. The seeding is effected in two manners, the beans being sown in light furrows or in finger holes placed uniformly apart. The former method is quite simple and requires no explanation; in the use of the latter method, the finger holes are about 9 inches apart, four or five seeds being dropped in each hole. The amount of seed used differs in the various districts, a higher altitude requiring a proportionately larger quantity of seed. The following shows the different quantities of seed used in the varying latitudinal districts of Manchuria: Liaotung Peninsula (district south of Tashihchiao), from thirty to forty-five hundredths of a bushel per acre; Mukden, Tiehling, and Kaiyuan, from forty-five to sixty hundredths of a bushel per acre; Kirin, from sixty-five to eighty hundredths of a bushel per acre; Heilungchiang, eighty hundredths of a bushel or more per acre. The first breaking and weeding of the soil takes place from six to ten days after seeding and when the sprouts are from 3 to 4 inches in length. Weeding is subsequently effected during intervals of four or five days (every ten days in northern Manchuria). Native hoes and rakes are used for weeding, the ground being broken with a wooden plow drawn by a horse or mule. The period of harvesting is from the latter part of September to the beginning of October, the bean plants being cut close to the roots, a stone roller or wooden flail being used in hulling. The average crops per acre by districts are estimated as follows: In southeast Manchuria and the coast of the Yellow Sea the yield is from 10 to 15 bushels per acre; in the Liao River valley, Changtu, Kaiyua, Tiehling, and Mukden the yield is from 40 to 50 bushels per acre; at Kirin the yield is from 24 to 26 bushels per acre; and in Heilungchiang (Amur district) the yield is from 17 to 22 bushels per acre." (*Pontius.*)

36846. "Yellow bean. *Pai mei*, 'white eyebrow,' from the white scar on the saddle, or point of attachment to the pod. This variety is highly prized for the quantity of oil or fat which it contains. Shipped from Fanchiatun station, near Changchun, south Manchuria." (*Pontius.*)

36846 to 36848—Continued.

36847. "Yellow bean. *Hei chi*, 'black belly,' from the dark-brown scar on the saddle. This variety is highly prized for the quality of oil or fat which it contains. Shipped from Kinchou station, leased territory." (*Pontius.*)

36848. "Green bean. *Ching tou.* This variety is said to yield more legumin in the manufacture of bean curd than the yellow bean, but the quality is inferior. It is also boiled and used as food." (*Pontius.*)

36849 and 36850. LINUM USITATISSIMUM L. **Flax.**

From Smyrna, Asia Minor. Presented by Mr. John W. Dye, American vice consul general. Received December 13, 1913.

36849. "The annual production of flaxseed in the Province of Smyrna is estimated at 280,000 to 300,000 pounds, the greater part of which is exported to France, Germany, and Italy. The price averages about 4 to 5 cents per pound." (*Dye.*)

36850. "A small sample of a grade of flaxseed grown on the island of Crete which appears on this market and is held at the same price as that from Asia Minor." (*Dye.*)

36851. LINUM USITATISSIMUM L. **Flax.**

From Pskoff, Russia. Presented by Malcolm & Co. Received December 16, 1913.

36852 to 36861.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received December 17, 1913.

Quoted notes by Mr. Meyer.

36852 to 36854. ZIZIPHUS JUJUBA Miller. **Jujube.**
(*Ziziphus sativa* Gaertner.)

36852. "(No. 1041. Peking, China. November 7, 1913.) A variety of jujube with large, round-oblong fruits of a dark mahogany-brown color; meat somewhat juicy and quite sweet. Trees of rather small growth and quite spiny. Cultivated in Peking gardens under the name *Ta tsao*, meaning 'big jujube.'"

36853. "(No. 1042. Peking, China. November 8, 1913.) A variety of jujube bearing rather small fruits of roundish shape and of a red-brown color; meat very sweet. Trees grow to be large, with heavy trunks and few spines. Produces more fruit when ringed annually. Cultivated in Peking gardens under the name *Hsiao tsao*, meaning 'small jujube.'"

36854. "(No. 1043. Peking, China. November 9, 1913.) A jujube bearing large fruits of elongated shape, tapering toward the end; color a rich reddish brown. Of sweet taste; meat firm; of rather good keeping qualities. Trees of tall growth with few branches; foliage very large. Cultivated in Peking gardens under the name *Yu tsao*, meaning 'tooth jujube,' on account of the tapering shape of the fruits."

36855. VIBURNUM PLICATUM Thunberg.

"(No. 1998a. Hsiao Wu tai shan, Chihli Province, China. August 30, 1913.) A shrub of medium dimensions, found on stony mountain slopes. Bears in early summer many umbels of whitish flowers, followed by berries which change from green to red and when ripe to black. The foliage is quite green and dense, the leaves somewhat undulated. Of value as a hardy ornamental drought-resisting shrub for the colder regions of the United States."

36852 to 36861—Continued.

36856. RIBES sp. **Currant.**

"(No. 1999a. Hsiao Wu tai shan, Chihli Province, China. August 29, 1913.) A currant of tall, open growth found on northern mountain slopes at elevations of 7,000 to 10,000 feet. Berries red, small, sour, and not juicy."

36857 to 36859. ROSA sp. **Rose.**

36857. "(No. 2000a. Hsiao Wu tai shan, Chihli Province, China. August 24, 1913.) A very tall and vigorously growing wild rose, found among tall scrub on mountain slopes. Of value as a stock for cultivated roses for the colder sections of the United States."

36858. "(No. 2001a. Hsiao Wu tai shan, Chihli Province, China. August 21, 1913.) A wild rose of low, bushy growth found on stony mountain sides. Of use possibly for stony and pebbly places in wild gardens."

36859. "(No. 2002a. Hsiao Wu tai shan, Chihli Province, China. August 29, 1913.) A wild rose of low growth and spreading habit, each stalk standing separately; found in semishady places at elevations of 7,000 to 10,000 feet. Of use possibly beneath trees as an open ground cover, especially for the colder sections of the United States."

36860. HEMEROCALLIS sp. **Day lily.**

"(No. 2003a. Hsiao Wu tai shan, Chihli Province, China. August 29, 1913.) A low-growing liliaceous plant with linear leaves, found on open, rocky places at altitudes of 5,000 to 7,000 feet. Of value possibly as a hardy perennial for the colder sections of the United States.

36861. PHASEOLUS VULGARIS L. **Bean.**

"(No. 2004a. Hsiao Wu tai shan, Chihli Province, China. August 30, 1913.) A good variety of garden bean cultivated in a temple garden at an elevation of 5,000 feet. Of value apparently as a garden vegetable for the cooler sections of the United States."

36862 and 36863. CUCUMIS MELO L. **Muskmelon.**

From Spalato, Dalmatia, Austria-Hungary. Presented by Mr. William T. Forbes, Worcester, Mass. Received December 6, 1913.

36862. "Seeds of a muskmelon served at the Grand Bellevue Hotel. Melons nearly spherical, 9 inches in diameter; flesh 3 inches thick and seed opening 3 inches. Sweet; flesh green; tastes like pineapple." (*Forbes.*)

36863. "Seeds of a muskmelon served at the Grand Bellevue Hotel. Melons 9 inches in diameter; very sweet; green flesh; pineapple taste; very fine." (*Forbes.*)

36864. BELLUCIA sp. **Papaturro.**

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, Department of Agriculture, San Jose. Received December 9, 1913.

"A small tree, with fruit which to my taste is one of the best; flowers large and beautiful; very fragrant; for hot climates, deep, fresh alluvial land; grows principally on the banks of creeks." (*Wercklé.*)

36865. JUGLANS CINEREA × REGIA. **Walnut.**

From Jamaica Plain, Mass. Presented by Mr. John G. Jack, East Walpole, Mass. Received December 22, 1913.

"From the Eben Bacon estate, Prince Street, Jamaica Plain, Mass. A large tree with the aspect of a butternut (*J. cinerea*) but closer, less deeply furrowed bark. Leaves of few large leaflets. Nuts much like *J. cinerea*, but shell less sharply rough and husk not glandular pubescent. Trunk about 4 feet in diameter at 2 feet from ground, at 4 feet from ground dividing into three large limbs." (*Jack.*)

"A large widespreading specimen with a trunk diameter of 4 feet 3 inches about 2 feet above the surface of the ground and just below the point where it divides into three large limbs, standing in the grounds of Mr. Eben Bacon, of Jamaica Plain. This tree is supposed to have been planted between 50 and 60 years ago." (*Garden and Forest, No. 349, October 31, 1894.*)

36866 to 36887.

From Pango Pango, Samoa. Presented by Commander C. D. Stearns, Governor of American Samoa. Received December 10, 1913.

36866. ADENANTHERA PAVONINA L. **Coral bean tree.**

"A handsome deciduous tree with spreading branches and bipinnate leaves bearing pods of glossy, scarlet, biconvex seeds. Pinnæ two to six pairs; leaflets 6 to 12 pairs, oval, obtuse, glabrous; flowers in racemes, numerous, small, white and yellow mixed, fragrant; calyx 4 to 5 toothed; stamens 8 to 10; pods linear, somewhat curved, bivalved, 10 to 12 seeded.

"The tree is a native of the East Indies, where the jewelers use the seeds for weights, each weighing almost exactly 4 grains. The heartwood of the larger trees is of a deep-red color. It is hard and durable and in India is sometimes used as a substitute for red sandalwood. It yields a dye which the Brahmins of India use for marking their foreheads. It has long been growing in Guam, and is pretty well distributed over the island. Its vernacular name, *kolales*, is an imitation of 'corales' (coral beads), and is likewise applied to the smaller seeded *Abrus abrus*." (*W. E. Safford, Useful Plants of Guam.*)

36867. BARRINGTONIA ASIATICA (L.) Kurz. **Fütu.**

"*Fütu.* A moderate-sized tree; cuts light but grows brown by exposure. The wood is curly, brittle, and soft; it is quite light and is used for canoes; it is not a valuable wood for general use, though much esteemed by the natives on account of the ease with which it is worked. The fruit is reduced to powder and used to stupefy fish in a method of fishing called *Seu.* The leaves are large and lustrous, like magnolia foliage, and the flowers are very beautiful." (*Stearns.*)

36868. BARRINGTONIA SAMOENSIS A. Gray.

"*Falaga.*"

Distribution.—A tree whose protruding red-stamened flowers are borne in racemes 2 feet long. Found in Samoa and on the adjacent islands.

36869. BIXA ORELLANA L. **Annatto tree.**

"*Loa.* A small tree, bearing prickly capsules containing seeds surrounded by red pulp, which yields the well-known annatto of commerce. Leaves cordate-ovate, acuminate entire or angular, smooth on both surfaces.

"Annatto is prepared by macerating the pods in boiling water, removing the seeds, and leaving the pulp to settle. The water is then poured off, and the residuum, which is of a bright-yellow or orange color, is used as a dyestuff. In Guam it is sometimes put in soup and rice. The Caroline Islanders use it to paint their bodies, together with turmeric. It is sometimes used in the same way by the Samoans.

"The chief uses to which annatto is applied are for dyeing silk and cotton orange yellow and for coloring cheese and butter. The color imparted to fabrics, however, is not lasting." (*W. E. Safford, Useful Plants of Guam.*)

36866 to 36887—Continued.

36870. CANAVALI sp.

"*Fue-lopa.*"

36871. CLERODENDRUM AMICORUM Seem.

"*Mamalupe.*"

Distribution.—A white-flowered shrub, often 15 feet tall, found in Samoa and on the adjacent islands.

36872. CRASSINA ELEGANS (Jacq.) Kuntze.
(*Zinnia elegans* Jacq.)

"*Makerika.*"

36873. DIOSCOREA sp. **Yam.**

"*Soi*, a species of yam."

36874. GYNOPOGON BRACTEOLOSA (Rich.) Schumann.
(*Alyxia bracteolosa* Rich.)

"*Nau*, or *Laumaile.*"

36875. INDIGOFERA sp.

"*Fue.* This is one of the many varieties of creeping plants. This one in particular is a kind of shrub." (*Stearns.*)

36876. LEUCAENA GLAUCA (L.) Benth.

"*Lopa.* Another of the lopa species." (*Stearns.*)

36877. MABA ELLIPTICA Forster. **Maba.**

"A shrub of 6 feet or more, or a moderate-sized tree, or sometimes a lofty tree; branches slender, cinereous, terete, rather rough; shoots hairy, glabrescent; leaves elliptical or oblong-lanceolate, obtuse at the apex, cuneate at base, glabrescent, subcoriaceous, 1½ to 4½ inches long by three-fourths to 1½ inches wide. Petioles one-tenth to one-fifth inch long. The fruit is fleshy, pedunculate, crowded, greenish, ellipsoidal, scarcely 1 inch long by one-half inch thick, pubescent or nearly glabrous, two or three celled; seeds triquetrous. This plant is called *Maba* by the natives in the Friendly Islands, and *Kiharùpat* in Java, and *Anúme* in the Navigator's Islands. It is eaten by the children and flowers in June or July and in January or February. When young, it is difficult to distinguish from *M. rufa*, and approaches also in appearance *M. buxifolia.*" (*Hiern, Monograph of Ebenaceæ, in Transactions of the Cambridge Philosophical Society, vol. 12, pt. 1, p. 122, 1873.*)

36878 and 36879. MEIBOMIA UMBELLATA (L.) Kuntze. **Bush tick trefoil.**
(*Desmodium umbellatum* DC.)

"*Lala.* A shrub 1 to 2 meters high, growing on the sea beach, with densely downy young branches, 3-foliate leaves, and axillary umbels of whitish papilionaceous flowers. Branches terete; petioles 2.5 cm. or less long, slightly furrowed; leaflets subcoriaceous with raised costate veins, green and glabrous above, thinly gray-canescent or nearly glabrescent beneath, end leaflet larger than side ones, roundish, or broad-oblong, 5 to 7.5 cm. long; umbels 6 to 12 flowered; pedicels short, unequal; calyx 4 mm. long, densely silky, 4-parted, 2-bracted; bracts minute, deciduous; standard of corolla obovate, keel blunt; stamens monadelphous; pod jointed, 3.5 to 5 cm. long, the joints 3 to 5, thick, glabrescent or silky, indented at both sutures.

"A strand shrub of wide tropical distribution. Common near the beach in Guam, Samoa, Fiji, and the Malay Archipelago. In Samoa it is used for perches for pet fruit pigeons. The Guam name means 'lizard's bush.'" (*W. E. Safford, Useful Plants of Guam.*)

36866 to 36887—Continued.

36880. MORINDA CITRIFOLIA L. **Nona.**

"This plant, called *ladda* or *lada* by the natives of Guam, has seeds of unusual interest. Their buoyancy is insured by a distinct air cell. They are frequently found in the drift of tropical shores, and experiments have been made which demonstrate the great length of time they will float in salt water." (*W. E. Safford, Useful Plants of Guam.*)

Distribution.—A small tree, cultivated as well as wild, in the warmer parts of India and in Ceylon: also found on the islands eastward to Australia.

36881. MYRISTICA INUTILIS Rich. **Nutmeg.**

"*Atone;* a tree." (*Stearns.*)

36882. PARINARI LAURINUM A. Gray. **Ifi-ifi.**

"*Ifi-ifi.* A large tree which bears a round, very hard fruit; it is used by the natives mixed with coconut oil to make a thick paste for the hair. Very common in Samoa." (*Stearns.*)

36883 and 36884. STYLOMA PACIFICA (Seem. and Wendl.) O. F. Cook.
(*Pritchardia pacifica* Seem. and Wendl.)

"*Niu-piu;* the fan palm." (*Stearns.*)

36885. SCLERIA POLYCARPA Böckeler.

"*Selesele;* species of sedge." (*Stearns.*)

36886. CEIBA PENTANDRA (L.) Gaertner. **Kapok.**
(*Eriodendron anfractuosum* DC.)

"*Vavæ;* tree cotton."

36887. COLOCASIA sp.

Tuber.

36888. MYRCIARIA CAULIFLORA (Mart.) Berg. **Jaboticaba.**

From Bahia, Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received December 25, 1913.

"(No. 32a. December 5, 1913.) Two hundred and thirty-eight seeds of the jaboticaba, from specimens purchased in the Bahia market. The variety (or species) seems to be distinct from either of those sent in from Rio de Janeiro, the seeds being slightly larger, less compressed, and the cotyledons white instead of pinkish. The majority of the fruits contain only one seed, but two are found in some instances. The fruits average over an inch in diameter. The color is deep purplish maroon. We find the jaboticaba when fully ripe to be of an exceedingly agreeable flavor. This fruit is certainly worthy of a thorough trial in southern Florida and southern California." (*Dorsett, Shamel, and Popenoe.*)

36889 to 36896.

From Tientsin, China. Presented by Dr. Yamei Kin, Pei-Yang Woman's Medical School and Hospital. Received December 27, 1913.

36889 to 36895. ZEA MAYS L. **Corn.**

36889. "No. 1. Two ears of the red *mi pang tze*, an early variety called *chen chu*, 'pearl,' on account of its small size. From Yutien district in Chihli Province." (*Kin.*)

36890. "No. 1. One ear of a white variety of the *mi pang tze*. From Yutien district in Chihli Province." (*Kin.*)

36889 to 36896—Continued.

36891. "No. 1. Another variety of the early *mi pang tze*, called the *ma ya*, 'horse teeth,' on account of its shape and size." (*Kin.*)

36892. "No. 2. *Mi pang tze* from the Shali ho district, which is not far from Peking. Also from Chihli Province." (*Kin.*)

36893. "No. 2. *Mi pang tze* of a late variety from the Yutien district, Chihli Province." (*Kin.*)

36894. "Loose corn from package No. 1. From Yutien district, Chihli Province."

36895. "Loose corn from package No. 2. From the Shali district."

36896. SESAMUM ORIENTALE L. **Sesame.**

"From Yutien district, Chihli Province. Seed of the best sesame of this district, which is noted for its good sesame oil.

"The sesame seed is very small and needs to be thinly sown in rows, so that between the plants there will be a hand's span of space, and the rows should be wide enough apart to permit an animal to pass, to draw the harrow, as they say in China. It is what I should judge to be about 2 feet. It is important to allow space enough, or it will not make a good strong growth. The little bagful is sufficient for a mu [about one-sixth acre] of ground. It does not need much moisture, doing best in such soil as is good for maize, and needs only about the same amount of manure. It is particular in that it will not bear at all if any other kind of plant is put in between the rows. You know the Chinese are great on mixing a row of beans or something small between the kaoliang or maize.

"This sesame should grow to be about the height of a man, say 5 feet, more or less, depending on the vigor of growth. When the leaves at the bottom of the stalk begins to turn yellow it should be gathered and tied into bundles and stood up straight till such time as the pods, as they say, 'open their mouths'; then, picking the stalks up, shake them upside down into a flat basket, when the seeds will readily fall out. If it is desired to let the seed ripen fully on the stalk before gathering, one must put a flat basket under the stalk and shake the stalk, or else the seeds will largely be lost, as they fall out readily once the pods dehisce.

"In making the oil, the process is not by the ordinary method of pressure. but as follows: First, the seed must be lightly roasted to a brown color, but not burned, or else the oil will be bitter. The heat makes the oil give out a peculiar nutty odor. It is lightly ground in a small mortar till it is like a coarse meal, and then it is stirred in a bowl with a wooden stick, adding a little water when it becomes a very sticky mass and the whole adheres together like a lump of dough. Adding more water at this stage, while constantly stirring, drives out the oil, which appears in the bowl separate from the sticky mass. The first lot of water produces the best oil, and successive additions produce oil that is thinner and thinner, and finally the mass falls apart, when there is no more oil to be obtained. The residue is used for fertilizer. It is excellent for potted plants, being clean and quick in action, though it does not last as long as some other kinds of fertilizer, according to my limited experience. I asked why they did not press the oil as with peanuts, etc., and the reply was that it would be wasting so much oil, for the Chinese have only the primitive stone mills, and they would require a large amount of seed to begin with and much would adhere to the stones, so that it would be lost. It is considered the finest oil for cooking purposes, and what I have tried certainly has yielded good results. But it requires to be fresh, and perch, doughnuts, etc., things that require to

36889 to 36896—Continued.

be fried in deep oil, are delicious, superior to those fried in the fine qualities of pure light-green olive oil that I have seen. The seeds roasted lightly over a fire in an ordinary saucepan are often added to cakes, somewhat like the poppy seeds the Germans are so fond of over their various breads and rolls, and often some of the fancy rice dishes are made with a mixture of the sesame seed. It is used largely to sprinkle over the sticks of barley sugar sold on the streets, performing the double office of powder to keep the candy from sticking together and adding a nutty flavor, which enriches the candy." (*Kin.*)

36897 to 36899.

From Hongkong, China. Presented by Mr. W. J. Tutcher, superintendent, Botanical and Forestry Department. Received December 27, 1913.

36897. ALEURITES MONTANA (Lour.) Wils. **Mu-yu (wood-oil) tree.**

"*Mu-yu*. The three species of Aleurites, *fordii* Hemsl., *montana* (Lour.) Wils., and *cordata* R. Br., from very early times have been almost hopelessly confused. The first mention of the *Mu-yu shu* (literally, wood-oil tree), *A. montana* (Lour.) Wils., occurs in Lamarck's Encyclopédie Méthodique Botanique, where, under the name *Dryandra oleifera*, the fruit of this tree is described, in conjunction with the flowers and foliage of *A. cordata* R. Br. He [Lamarck] states that it is called *Mou-yeou* by the Chinese and that it was cultivated in the Jardin du Roi, at l'Isle de France. The Jesuit missionary, Loureiro, a Portuguese, established himself at Canton in 1779, and for three years investigated the flora of that region. He secured specimens of the *Mu-yu shu*, and in his Flora Cochinchinensis, page 518 (1790), describes it as *Vernicia montana*, and his specific name, being the oldest valid name, must stand. Subsequent authors have given other names to this tree, and several of them, notably Mueller Arg. (in De Candolle's Prodromus, vol. xv, pt. 2, p. 724, 1866), continued the confusion begun by Lamarck (loc. cit.).

"As a cultivated tree, *A. montana* occurs in the subtropical parts of southeastern China, from the province of Fokien southward to Tonkin, and is also undoubtedly a native of these regions. It requires, without question, a subtropical climate and a more abundant rainfall than its more northern relative, *A. fordii*. In the central part of the Fokien Province, both *Mu-yu* and *Tung-yu* trees occur, according to Dunn (Report of the Botanical and Forestry Department, Hongkong, 1905, p. 117), and are known colloquially as *Hwa-tung* and *Guong-tung*, respectively. The *Hwa-tung*, to quote Dunn, 'is the most valued, because all the flowers of the majority of the trees produce fruit from which the oil is made, while in the second kind a few flowers only in each cluster are perfect, quite 80 per cent being male flowers.' This statement is not borne out by specimens before me, including some collected in Fokien by Dunn. The inflorescences might almost be classed into male and female, but there is nothing to indicate whether or not they came from the same or different trees. From the herbarium material one might reasonably assume that the tree was nearly diœcious, yet in all probability it is monœcious, as in other species of the family, but with a strong tendency to have the male and female flowers collected in different inflorescence of the same tree.

"The *Mu-yu* tree in size, habit, foliage, and general appearance (but not in the flowers and fruits) closely resembles the *Tung-yu* tree (*A. fordii* Hemsl.). The flowers are borne in a terminal corymb or a raceme on shoots of the current season's growth after the leaves have fully expanded. The 'male' inflorescence is many flowered, much branched, corymbose, 15 to 20 cm. long, and 20 to 30 cm. (1 cm. equals 0.3937 inch) broad. The 'female' inflorescence is

36897 to 36899—Continued.

relatively few flowered, racemose, and 8 to 12 cm. long. The fruit is markedly distinct, being egg shaped, 5 to 6 cm. long, 4 to 4.5 cm. wide, pointed at the summit and flattened at the base, with three longitudinal and many traverse, much-raised ridges; the interior part of the fruit (mesocarp) is thick and woody and incloses (usually) three compressed, broadly obovoid seeds, each about 3 cm. long by 2.5 cm. broad, and warty on the outside. When ripe, the fruit opens from the base upwards into three parts and the seeds can then be readily extracted. Since the fruit is comparatively thick and quite woody, it is not easily rotted by fermentation, as is the case in that of the *Tung-yu* tree.

"As will be shown later, the exports of oil from this tree are small, and it is quite impossible to cite chemical analyses that apply solely to the *mu-yu*, the product of *A. montana*. In all probability *Mu-yu* has been investigated by chemists, but, owing to the botanical confusion that has existed down to the present, it has not been clearly distinguished from *Tung-yu* or from the Japanese wood-oil. It is therefore very desirable that both the kernels which yield this *Mu-yu* and the commercial product itself be examined by chemists, and its constants, etc., definitely established. In order to avoid any possible error, a sample of the fruit should be obtained and the seeds extracted in the laboratory." (*E. H. Wilson, in the Bulletin of the Imperial Institute, vol. 11, no. 3, July to September, 1913.*)

For an illustration of the seed and fruit of the Mu-yu wood-oil tree, see Plate VI.

36898. GARCINIA OBLONGIFOLIA Champion.

"A native of Hongkong. This is a strong-growing creeper, which produces an edible fruit of a very pleasant, slightly acid taste." (*Tutcher.*)

36899. POUPARTIA AXILLARIS (Roxb.) King and Prain.
(*Poupartia fordii* Hemsl.)

"A tree about 30 feet high in its native habitat in Hongkong. It has fruit of an acid taste, rather bigger than a damson." (*Tutcher.*)

36900. PANAX QUINQUEFOLIUM L. **Ginseng.**
(*Aralia quinquefolia* Decne. and Planch.)

From Songdo, Chosen (Korea). Presented by Mr. Alfred Welhaven, Unsan, Chosen. Received December 26, 1913.

"This seed was secured at Songdo, Chosen, the home of ginseng cultivation, and I hope the seed will prove all that is claimed for it. The ginseng from Songdo is the best in the world, according to the prices paid for it by the Chinese, who are the chief consumers of ginseng. I have secured this seed from a Korean gentleman living in Songdo, and he says the seed is first class and will surely give results if properly taken care of. His instructions are to keep the seed in damp sand." (*Welhaven.*)

36901 to 36905. SOJA MAX (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

From Peking, China. Presented by Mr. John McGregor Gibb, Peking University. Received December 26, 1913.

Quoted notes by Mr. Gibb.

36901. "Iron pod."

36902. "Small golden flower."

36903. "The yellow four in a pod."

36904. "Big, white eyed."

36905. "White flower, short stalks."

36906 to 36912.

From Dalny, Manchuria. Presented by Mr. Albert W. Pontius, American consul. Received December 26, 1913.

Quoted notes by Mr. Pontius.

36906. Soja max (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

"Black soy bean. Shipped from Suchiatun station."

36907. Phaseolus angularis (Willd.) W. F. Wight. **Adzuki bean.**

"Small black bean. Shipped from Changchun station."

36908. Vigna sinensis (Torner) Savi. **Cowpea.**

"Small bean. Chinese name *Changtou;* Japanese name *Uzura-mame.* Shipped from Sanshihlipao, near Kinchou."

36909. Phaseolus aureus Roxb. **Mung bean.**

"Small green bean. Shipped from Yingchengtsu (in the Dairen district)."

36910 to 36912. Phaseolus angularis (Willd.) W. F. Wight. **Adzuki bean.**

36910. "Small red bean. Shipped from Changchun station."

36911. "Small red-spotted bean. Shipped from Changchun station."

36912. "Small white bean. Shipped from Sunshu station."

36913 to 36924.

Presented by Mr. Lewis S. Palen, Harbin, Manchuria. Received December 29, 1913.

Quoted notes by Mr. Palen.

36913. Cucurbita maxima Duch. **Squash.**

36914 to 36919. Soja max (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

36914. "(From Tsitsikhar, Manchuria. November 5, 1913.) Yellow. White-eyebrow variety, *Ta pai mei.* This bean is used for oil, bean curd, sauces, and bean sprouts. This sample is from about 100 miles east of this neighborhood. This variety is found mostly west of Kaiyuan and Tiehling on the South Manchuria Railway. The estimated yield is from 936 to 2,574 pounds per acre, and the price roughly estimated at 46 cents gold per bushel of 60 pounds on the market."

36915. "(No. 2. Changchun, Manchuria. November 1, 1913.) Yellow. Golden, round variety, *Chin yuan tou.* This bean is used for oil, bean curd, sauces, and bean sprouts. It is the variety most generally found scattered all over the bean districts of Manchuria. The estimated yield is from 936 to 2,574 pounds per acre, and the price is roughly estimated at 46 cents gold per bushel of 60 pounds on the market. The Chinese are most casual in their estimates of yields."

36916. "(No. 3. Kirin, Manchuria. November 1, 1913.) Large green variety, *Ta ching tou.* A bean with green epidermis and green interior. The percentage of oil is less than that of the yellow. Used as bean curd, and as bean sprouts boiled with vegetables. The estimated yield is from 936 to 2,574 pounds per acre and the price slightly less than that of the yellow; roughly, 3 per cent."

36917. "(No. 3. Changchun, Manchuria.) Small green. Green epidermis and yellow interior."

36913 to 36924—Continued.

36918. "(No. 4. Changchun, Manchuria. November 1, 1913.) Large black variety, *Ta wu tou.* The oil equals about 75 per cent of that from the yellow. Mostly fed to horses and cattle. In some places officials prohibit the use for oil, in fear of the cost of feed being too greatly enhanced. It grows best and is much used on wet and marshy lands, where the yellow and green varieties will not do well. The yield is about the same as that of the yellow. The price is from 1 to 2 per cent higher than the yellow, owing to the Japanese demand at Dalny. The Chinese do not know the reason why it is preferred to the yellow."

36919. "(No. 5. Tsitsikhar, Manchuria. November 5, 1913.) Flat, black variety, *Pien wu tou.* The oil equals about 75 per cent of that from the yellow. Mostly fed to horses and cattle. In some places officials prohibit the use for oil, in fear of the cost of feed being too greatly enhanced. The sample probably comes from about 100 miles to the northeast of here. It will do well in very wet ground. The price is estimated at about 50 cents gold per bushel of 60 pounds on the Tsitsikhar market, which is slightly lower than the price of the yellow."

36920. PHASEOLUS AUREUS Roxb. **Mung bean.**

"(No. 6. Changchun, Manchuria. November 1, 1913.) Green beans, *Lu tou tze.* Boiled with rice, when it is supposed by the Chinese to have a laxative effect; used also in making vermicelli. Quite generally found throughout bean districts. The yield, roughly estimated, is 1,700 pounds. The retail price in the Changchun market is 65 cents gold per bushel of 60 pounds."

36921 to 36923. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. **Adzuki bean.**

"Used boiled with kaoliang, corn, and other grains. The beans are first put in the kettle and cooked some time before the grains are added. Used also for white vermicelli. Although earlier than the yellow, green, and black soy beans, these small beans are said to be more confined to the southern districts. I can not vouch for this. The yield, roughly estimated, is 1,500 to 2,000 pounds. The price is slightly lower than that of sample No. 6 [S. P. I. No. 36920], say 5 per cent."

36921. "(No. 7. Changchun, Manchuria.) Small red bean, *Hung hsiao tou.*"

36922. "(No. 8. Changchun, Manchuria.) Small gray mottled bean, *Li hsiao tou.*"

36923. "(No. 9. Changchun, Manchuria.) Small white bean, *Pai hsiao tou.*"

36924. PHASEOLUS VULGARIS L. **Kidney bean.**

"(No. 10. Changchun, Manchuria.) *Su cheng tou.* Earliest of all varieties. Boiled like our Boston beans. Often planted as a catch crop where the green and yellow beans failed."

36925. QUERCUS SUBER L. Cork oak.

From Gibraltar, Spain. Presented by Mr. R. L. Sprague, American consul. Received December 22, 1913.

"Spanish cork-oak acorns gathered in the woods in the vicinity of Gaucin, which is considered the best cork-producing region." (*Sprague.*)

36926. Asparagus lucidus Lindley. **Asparagus.**

From Taihoku, Formosa, Japan. Presented by the Bureau of Productive Industries, Government of Formosa. Received December 26, 1913.

"This is a scrambling plant of the most vivid green, forming an entangled mass many feet in length when cultivated in the greenhouse, but in its natural state not even a foot high. It is a native of Macao, whence it was received by the Duke of Northumberland, with whom it has produced little green flowers at Lyon. It is nearly allied to *A. falcatus*, from which it differs in its smaller solitary leaves and in the flowers not growing in racemes." (*Edwards's Botanical Register, 1844, Misc., p. 29, No. 36.*)

36927 to 36929.

From Bahia, Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received December 27, 1913.

Quoted notes by Messrs. Dorsett, Shamel, and Popenoe.

36927. Cocos coronata Martius. **Nicuri palm.**

"(No. 29a. November 28, 1913.) Seeds of the nicuri palm, a species common in the region around the city of Bahia. It grows to a height of 20 or 30 feet and is usually somewhat scraggly in appearance, on account of the leaves being whipped and torn by the wind. The old leaf bases usually adhere to the trunk and are arranged spirally, giving a curious twisted appearance to the palm. The leaves are glaucous, and when well grown are very graceful, though not as feathery as *Cocos plumosa* and others of that type. In the interior of Bahia State this palm is very abundant, according to Dr. Argollo Ferrão, and goats feed on the fruits. The hard shell of the seed incloses a kernel which is fed to chickens and is sometimes eaten by the people themselves. The leaves are used as thatch and for making brooms, carpets, and hats; the nicuri hat is commonly worn by the natives in the rural districts around Bahia, and is sold in the markets at from 200 or 300 reis to 1 milreis (7 to 35 cents) each, according to quality. The plant is of slow growth. A wild orchid, called here wild vanilla, commonly grows on its trunk. It should be tried in Florida and California. These seeds were obtained at Shr. Pedro da Costa's place in Matatu, a suburb of Bahia."

36928. Canna sp. **Canna.**

"(No. 30a. November 28, 1913.) Seeds of a wild canna which grows along the roadsides in the suburbs of Bahia. Its flowers are scarlet; the petals are narrow; the plant grows 3 to 4 feet high. For hybridization."

36929. Eugenia uniflora L. **Pitanga.**

"(No. 31a. November 29, 1913.) Seeds of the *pitanga* from select fruits produced at the country home of Dr. Fortunato da Silva in Cabulla, a suburb of Bahia. These fruits were chosen because of their unusually large size and handsome appearance. Should be tested in California and Florida as a selected strain of this interesting fruit. The pitanga is extensively used here as a hedge plant, and appeals to us as being unusually good for this purpose. The fruit is esteemed by the natives, especially when made into jelly or preserves. Pitanga sherbet is also popular in Bahia and is served in the cafés. Since the plant is already known in California and Florida under the name of 'Surinam cherry,' a description of this fruit is not necessary."

36930. CARICA PAPAYA L. **Papaya.**

From Brooksville, Fla. Grown at the Plant Introduction Field Station, Brooksville. Received December 30, 1913.

Seed of original plant given to Mr. Gomme by Mr. A. F. Spawn, late of Kissimmee, Fla. Seed supposed to be of Porto Rican origin. "We have two trees fruiting in the garden here, and they have withstood the cold these two seasons so far. The fruit appeals to me more than the Texas and Mexican varieties, being a little larger and sweeter; in fact, it is one of the best flavored papayas I have ever eaten. They make excellent preserves when cooked with lemon and a small quantity of apple." (*Gomme.*)

36931 to 36933.

From Elim, German Southwest Africa. Presented by the Finnish Mission. Received December 26, 1913.

36931. PENNISETUM GLAUCUM (L.) R. Brown. **Pearl millet.**
(*Pennisetum typhoideum* Rich.)

"*Omahangu.*"

36932. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

"Native name '*Iilja.*' Red seeded."

36933. VIGNA SINENSIS (Torner) Savi. **Cowpea.**

"*Omakunde*, native pea."

36934. CYPHOMANDRA BETACEA (Cav.) Sendt. **Tree tomato.**

From La Guayra, Venezuela. Presented by Mr. Thomas W. Voetter, American consul. Received December 30, 1913.

"*Tomate extranjero.* Seeds of a fruit growing wild on the mountains near La Guayra. The accounts of the nature of the plant are conflicting, some stating that it is a tree about the size of a coffee tree; others that it is an annual and small. It is comparatively scarce. The fruit seems to be a species of tomato. It is about 3 inches long, with a diameter about half that. It is ovoid in shape, with a very firm and smooth skin, red in color, glossy, and of very attractive appearance. The flesh is firm and nearly fills the fruit, the seeds being relatively few in number and comparatively hard. The consistence, structure, and flavor of the flesh are very like a tomato. It preserves well. This plant is said not to be a native of Venezuela, and the names given, *Tomate extranjero* and *Tomate francés*, would indicate the same." (*Voetter.*)

36935 and 36936. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Carignan, Ardennes, France. Purchased from Denaiffe & Fils. Received December 30, 1913.

36935. Black. **36936.** White.

INDEX OF COMMON AND SCIENTIFIC NAMES.

Abrus praecatorius, 36283.
Acanthopanax spp., 36733, 36734.
Acrocomia sclerocarpa, 36693.
Actinidia arguta, 36617.
Adenanthera pavonina, 36866.
Adzuki bean. See *Phaseolus angularis.*
Aeluropus littoralis, 36545.
Agropyron sp., 36792.
Agrostis spp., 36284, 36285.
Aguacate, *Persea americana*, 36687.
Ajahuiri, *Solanum* sp., 36657.
Albizzia julibrissin, 36810.
Aleurites fordii, 36608.
  montana, 36574, 36897.
Alfalfa (China), 36784.
  (India), 36551–36560.
  See also *Medicago* spp.
Allium cepa, 36286, 36811, 36812.
Alyxia bracteolosa. See *Gynopogon bracteolosa.*
Amaranthus sp., 36287.
Ampelopsis aconitifolia, 36754.
Amygdalus davidiana, 36664, 36665, 36725, 36807.
  persica, 36485, 36703, 36717, 36724, 36805, 36806.
Andiroba, *Carapa guianensis*, 36715.
Andjiki, *Holcus sorghum*, 36682.
Angom, *Holcus sorghum*, 36686.
Anise, *Pimpinella anisum*, 36365.
Annatto, *Bixa orellana*, 36869.
Annona cherimola, 36288–36293.
  × *squamosa*, 36562.
  diversifolia, 36632.
  muricata, 36294, 36532, 36700.
  sp., 36274.
Anúme, *Maba elliptica*, 36877.
Apium sp., 36295.
Apple, crab, *Malus* sp., 36601, 36803.
  lin-kin, 36601.
Arachis hypogaea, 36296–36298.
Aralia quinquefolia. See *Panax quinquefolium.*
Arbutus canariensis, 36529.
Arrebenta-cavallos, *Solanum aculeatissimum*, 36271.
Artemisia maritima, 36814.
  sp., 36797.
Ash, mountain, *Sorbus* sp., 36730.
Asparagus dauricus, 36766.
  lucidus, 36926.
  trichophyllus flexuosus, 36769.
  spp., 36767, 36768.
Astragalus sp., 36790.
Atone, *Myristica inutilis*, 36881.
Avas, *Vicia faba*, 36393.
Avena nuda, 36675.
  sativa, 36546–36548.
Avocado (Florida), 36270.
  (Hawaii), 36603, 36604.
  (Mexico), 36687.
  McDonald, 36603.
  Nutmeg, 36604.
  (Samoa), 36817.
  See also *Persea americana.*

Bactris utilis, 36573.
Bakoa, *Holcus sorghum*, 36681.
Barberry. See *Berberis* spp.
Barley (Bolivia), 36360.
  (Peru), 36345, 36346.
  See also *Hordeum vulgare.*
Barringtonia asiatica, 36867.
  samoensis, 36868.
Bauhinia sp., 36842.
Bean, adzuki. See *Phaseolus angularis.*
  Aliados, 35465.
  Araucanos, 36457.
  Avalitos, 36405, 36410.
  Azufrados, 36407.
  (Bolivia, Chile, Peru), 36395–36478.
  Borito, 36414.
  broad, *Vicia faba*, 36393.
  Bueye, 36404.
  Burros, 36411.
  Caballeros, 36396.
  (Chile, Bolivia, Peru), 36395–36478.
  (China), 36861.

Bean, Chincha, 36406.
Del Norte, 36409.
kidney. See *Phaseolus vulgaris.*
Lima. See *Phaseolus lunatus.*
(Manchuria), 36921–36924.
Manteco, 36415.
mung, 36909, 36920.
(Peru, Bolivia, Chile), 36395–36478.
scarlet runner, *Phaseolus coccineus*, 36476.
soy. See *Soja max.*
white runner, *Phaseolus coccineus*, 36477, 36478.
Bellucia costaricensis, 36535.
sp., 36864.
Benzoin sp., 36588.
Berberis amurensis, 36736.
chinensis, 36737.
heterophylla, 36626.
sp., 36568.
Beta vulgaris, 36773.
Bixa orellana, 36869.
Blackberry, Castille, 36571.
Stone, 36572.
Boldo, *Peumus boldus*, 36279.
Bramble, *Rubus* spp., 36758, 36759.
Brassica chinensis, 36782.
oleracea capitata, 36299, 36300, 36302.
caulo-rapa, 36770.
pekinensis, 36781, 36783.
rapa, 36301.
Broad bean, *Vicia faba*, 36393.
Bush tick trefoil, *Meibomia umbellata*, 36878, 36879.
Butternut-walnut hybrid, *Juglans cinerea* × *regia*, 36865.

Cabbage. See *Brassica oleracea capitata.*
Chinese, *Brassica* spp., 36781, 36783.
Cabelluda, *Eugenia tomentosa*, 36713.
Caesalpinia sp., 36303.
Calafata, *Berberis heterophylla*, 36626.
Calbigia, *Triticum aestivum*, 36622.
Califata, *Berberis* sp., 36568.
Calligonum arborescens, 36536.
caput-medusae, 36538.
rubicundum, 36537.
eriopodum, 36539.
setosum, 36540.
Cañahue, *Chenopodium quinoa*, 36306.
Canaloni melon, *Citrus grandis*, 36589.
Canavali sp., 36870.
Cañegua, *Chenopodium* sp., 36304.
Canna sp., 36928.
Capoilles, *Prunus salicifolia*, 36371.
Capsicum annuum, 36774–36777.
Caragana sp., 36746.
Carapa guianensis, 36715.
Carica papaya, 36262, 36273, 36275–36278, 36280, 36281, 36489, 36605, 36628, 36633, 36659, 36697, 36844, 36930.
Casimiroa edulis, 36602.
Cassia grandis, 36714.
Castanea mollissima, 36666.
Castor bean, *Ricinus communis*, 36375, 36377.
Catete, *Zea mays*, 36710.
Cayaponia sp., 36640.
Cebil, *Piptadenia cebil*, 36367, 36368.
Ceiba pentandra, 36886.
Chaetochloa italica, 36673, 36796.
Chang la tze, *Capsicum annuum*, 36776.
tou, *Vigna sinensis*, 36908.
Chard, *Beta vulgaris*, 36773.
Chen chu, *Zea mays*, 36889.
Chenopodium quinoa, 36305–36312.
sp., 36304.
Cherimoya, *Annona cherimola*, 36288–36293.
Cherry, bird, *Prunus padus*, 36723.
black, *Prunus salicifolia*, 36371.
Chestnut, *Castanea mollissima*, 36666.
Chiang ghan pai ts'ai, *Brassica chinensis*, 36782.
Chin hwang tou, *Soja max*, 36649.
yuan, *Soja max*, 36651.
tou, *Soja max*, 36651, 36915.
Chinese wood-oil tree. See *Aleurites* spp.
Ching da, *Beta vulgaris*, 36773.
tou, *Soja max*, 36646, 36848.
Chrysopogon avenaceus. See *Sorghastrum stipoides.*
Citrus aurantium, 36636, 36694, 36707.
grandis, 36589, 36698.
limonia, 36654.
nobilis deliciosa, 36634.
sinensis, 36265, 36266, 36635, 36637, 36689, 36691, 36692, 36701.
Clerodendrum amicorum, 36871.
Cocos coronata, 36927.
Coffea sp., 36641.
Colocasia spp., 36593–36595, 36677, 36887.
Colubrina asiatica, 36490.
Colutea sp., 36747.
Coral bean tree, *Adenanthera pavonina*, 36866.

Coriander, *Coriandrum sativum*, 36313.
Coriandrum sativum, 36313.
Cork oak, *Quercus suber*, 36925.
Corn (Barbados), 36699.
    (Brazil), 36710–36712.
    Catete, 36710.
    Chen chu, 36889.
    (China), 36667–36669, 36889–36895.
    Ma ya, 36891.
    Mi pang tze, 36889–36893.
    (Peru), 36267–36269.
    Peruvian, 36711, 36712.
    To kwei boun tze, 36667.
  See also *Zea mays*.
Cornus spp., 36741, 36742.
Corylus spp., 36726, 36727.
Cotoneaster moupinensis, 36739.
    spp., 36738, 36740.
Coutarea hexandra, 36661.
    speciosa. See *Coutarea hexandra*.
Cowpea, *Vigna sinensis*, 36908, 36933.
    Changtou, 36908.
    Omakunde, 36933.
    Uzura-mame, 36908.
Crab apple, *Malus* spp., 36601,36803.
Crane's-bill, *Erodium* sp., 36789.
    Geranium sp., 36788.
Crassina elegans, 36872.
Crataegus pinnatifida, 36801.
Cucumis melo, 36314, 36315, 36534, 36660, 36845, 36862, 36863.
Cucurbita ficifolia, 36328.
    maxima, 36329, 36778, 36779, 36913.
    pepo, 36330–36341.
    spp., 36316–36323, 36325–36327, 36342.
Currant, *Ribes* sp., 36856.
Curujujúl, *Karatas plumieri*, 36260.
Custard-apple, *Annona muricata*, 36294.
Cyamopsis tetragonoloba, 36549.
Cyphomandra betacea, 36934.
    sp., 36343.

Daneri, *Holcus sorghum*, 36685.
Dasheen (China), 36677.
    (Florida), 36593–36595.
    (Samoa), 36887.
  See also *Colocasia* spp.
Date, Barakawi, 36826.
    Bentamoda, 36818–36825.
    Gondeila, 36827.
    Jendila, 36827.
    Kulma, 36828.
    Mosque, 36676
Day lily, *Hemerocallis* sp., 36860.
Desmodium umbellatum. See *Meibomia umbellata*.
Dioscorea sativa, 36629.
    spp., 36816, 36873.
Diospyros kaki, 36531, 36631.
    lotus, 36808.
Djolomri, *Holcus sorghum*, 36684.
Dodonaea viscosa, 36813.
Dryandra oleifera. See *Aleurites montana*.
Duchesnea indica, 36757.

Elaeagnus angustifolia, 36542–36544.
Elder, *Sambucus racemosa*, 36744.
    williamsii, 36745.
Elymus dahuricus, 36793.
    sibiricus, 36794.
    sp., 36541.
Ephedra sp., 36344.
Eriodendron anfractuosum. See *Ceiba pentandra*.
Erodium sp., 36789.
Eucalyptus crebra, 36618, 36619.
    gunnii, 36620.
    stuartiana, 36621.
Eugenia tomentosa, 36713.
    uniflora, 36929.
    ventenatii, 36272.
Euonymus sp., 36569

Fabiana imbricata, 36567.
Falaga, *Barringtonia samoensis*, 36868.
Flax (Asia Minor), 36849, 36850.
    (Idaho), 36630.
    (India), 36565, 36566, 36600.
    (Russia), 36851.
  See also *Linum usitatissimum*.
Fragaria indica. See *Duchesnea indica*.
Fue, *Indigofera* sp., 36875.
Fue-lopa, *Canavali* sp., 36870.
Fullahkorn, *Holcus sorghum*, 36681.
Fütu, *Barringtonia asiatica*, 36867.

Garcinia mangostana, 36575.
    oblongifolia, 36497, 36898.
Gawarfulli bean, *Cyamopsis tetragonoloba*, 36549.
Geranium sp., 36788.
Ghae tang kuo, *Malus* sp., 36803.
Ghau tze, *Artemisia* sp., 36797.
Ghu pee doh, *Soja max*, 36809.
Ginseng. See *Panax quinquefolium*.
Glycine hispida. See *Soja max*.
Gooseberry, *Ribes* sp., 36756.
Gourd, *Lagenaria vulgaris*, 36598.

Grape, *Vitis amurensis*, 36753.
Grass, *Nassella* sp., 36349.
  Jaragua, *Sorghastrum stipoides*, 36624.
  Molasses, *Melinis minutiflora*, 36625.
  Stipa sp., 36385, 36386.
Grevillea banksii, 36705.
Guanábana, *Annona muricata*, 36294.
Guar bean, *Cyamopsis tetragonoloba*, 36549.
Guarero, *Abrus praecatorius*, 36283.
  de la montaña, *Ormosia* spp., 36358, 36359.
Guava, *Psidium guajava*, 36372–36374.
Gum, large-leaved water, *Eugenia ventenatii*, 36272.
Guong-tung, *Aleurites fordii*. See under 36897.
Gynopogon bracteolosa, 36874.

Harris's lily, *Lilium longiflorum*, 36261.
Hawthorn, *Crataegus pinnatifida*, 36801.
Hazelnut, *Corylus* spp., 36726, 36727.
Hei chi, *Soja max*, 36847.
Helicteres ovata, 36706.
Hemerocallis sp., 36860.
Hibiscus mutabilis, 36695.
  waimeae × (?), 36528.
  Ruth Wilcox, 36528.
Hippophaë rhamnoides, 36743.
Holcus sorghum, 36610–36615, 36639, 36670–36672, 36680–36686, 36795, 36932, 36935, 36936.
Honeysuckle, *Lonicera* spp., 36748–36752.
Hong la pa tsui yang hua, *Incarvillea sinensis*, 36760.
Hordeum vulgare, 36345, 36346, 36360.
Hsi ghu lu, *Cucurbita maxima*, 36778.
Hsiao heo tou, *Soja max*, 36645.
  mi tze, *Chaetochloa italica*, 36673.
  tsao, *Ziziphus jujuba*, 36853.
  yea yen, *Nicotiana rustica*, 36780.
Hsien la tze, *Capsicum annuum*, 36777.
Huang mi, *Panicum miliaceum*, 36674.
  ya pai ts'ai, *Brassica pekinensis*, 36781.
Huilca, *Piptadenia cebil*, 36367.
Hung hsiao tou, *Phaseolus angularis*, 36921.
Hwa-tung, *Aleurites montana*. See under 36897.
Hwang tou, *Soja max*, 36650.
Ifi-ifi, *Parinari laurinum*, 36882.
Iilja, *Holcus sorghum*, 36932.
Ilama, *Annona diversifolia*, 36632.
Incarvillea sinensis, 36760.
Indigofera sp., 36875.
Ipomoea spp., 36491, 36642.
Iris ensata, 36765.
Iron-bark, *Eucalyptus crebra*, 36618, 36619.

Jaboticaba Branca, 36702.
  Corôa, 36702.
  Murta, 36702.
  Sao Paulo, 36702.
  See also *Myrciaria cauliflora*.
Jaboticabeira. See *Myrciaria cauliflora*.
Jabuticaba. See *Myrciaria cauliflora*.
Jaca-andu, *Annona* sp., 36274.
Jaragua grass, *Sorghastrum stipoides*, 36624.
Jequirity, *Abrus praecatorius*, 36283.
Juglans australis, 36599.
  cinerea × *regia*, 36865.
  regia sinensis, 36662, 36663.
Jujube, *Ziziphus jujuba*, 36852–36854.

Kaoliang, *Holcus sorghum*, 36670.
Kapok, *Ceiba pentandra*, 36886.
Karatas plumieri, 36260.
Kiharùpat, *Maba elliptica*, 36877.
Kohl-rabi, *Brassica oleracea caulo-rapa*, 36770.
Kolales, *Adenanthera pavonina*, 36866.

La tze, *Capsicum annuum*, 36775.
Lacayoti, *Cucurbita ficifolia*, 36328.
Lada, *Morinda citrifolia*, 36880.
Ladda, *Morinda citrifolia*, 36880.
Lagenaria vulgaris, 36598.
Lala, *Meibomia umbellata*, 36878, 36879.
Laranja cravo, *Citrus nobilis deliciosa*, 36634.
  da terra, *Citrus aurantium*, 36636, 36694, 36707.
Larch, Siberian, *Larix dahurica*, 36728.
Large-leaved water gum, *Eugenia ventenatii*, 36272.
Larix dahurica, 36728.
Laumaile, *Gynopogon bracteolosa*, 36874.
Lemon, *Citrus limonia*, 36654.
Lespedeza sp., 36563.
Leucaena glauca, 36876.
Li hsiao tou, *Phaseolus angularis*, 36922.
Licania platypus, 36590, 36591.
Ligularia sp., 36761.
  sibirica, 36762.

Lilium longiflorum, 36261.
spp., 36570, 36627, 36678.
Lily, Harris's, *Lilium longiflorum*, 36261.
See also *Lilium* spp.
Lima bean, *Phaseolus lunatus*, 36479–36484.
Linum usitatissimum, 36565, 36566, 36600, 36630, 36849–36851.
Loa, *Bixa orellana*, 36869.
Lonicera caerulea, 36752.
spp., 36748–36751.
Lopa, *Leucaena glauca*, 36876.
Lu tieh to, *Rubus* sp., 36758.
tou, *Phaseolus aureus*. See under 36846–36848.
tze, *Phaseolus aureus*, 36920.
Lucuma sp., 36324.
Lulo, *Solanum quitoense*, 36597.
Lupinus spp., 36347, 36348.
Lychnis coronata, 36764.

Ma ya, *Zea mays*, 36891.
Maba, *Maba elliptica*, 36877.
Maba elliptica, 36877.
Madronho, *Arbutus canariensis*, 36529.
Makerika, *Crassina elegans*, 36872.
Malus spp., 36601, 36803.
Mamalupe, *Clerodendrum amicorum*, 36871.
Mamão, *Carica papaya*, 36844.
da India, *Carica papaya*, 36697.
Man ching p'yi liang, *Brassica oleracea caulo-rapa*, 36770.
Mangifera indica, 36688, 36690, 36815, 36841.
Mango, Augusta, 36690.
(Brazil), 36688, 36690, 36841.
Rosa, 36688, 36841.
(Samoa), 36815.
Mangosteen, *Garcinia mangostana*, 36575.
Manin, *Arachis hypogaea*, 36296–36297.
Matta verde, *Fabiana imbricata*, 36567.
Mau doh, *Soja max*, 36785.
tau shu, *Amygdalus davidiana*,36665.
Medicago ruthenica, 36784.
sativa, 36551–36560.
Meibomia umbellata, 36878, 36879.
Mekossie, *Holcus sorghum*, 36680.
Melilotus alba, 36564.
Melinis minutiflora, 36625.
Mfonghuya, *Holcus sorghum*, 36682.
Mi pang tze, *Zea mays*, 36889–36893.
Millet, *Chaetochloa italica*, 36673. 36796.
pearl, *Pennisetum glaucum*, 36616, 36655, 36931.
Molasses grass, *Melinis minutiflora*, 36625.
Morinda citrifolia, 36880.
Morus alba, 36696.
Mou-yeou, *Aleurites montana*, 36897.
Mountain ash, *Sorbus* sp., 36730.
Mulberry, *Morus alba*, 36696.
Mung bean. See *Phaseolus aureus*.
Muskmelon (Austria), 36862, 26863.
(Brazil), 36845.
(Italy), 36534.
(Peru), 36314, 36315.
(Turkey), 36660.
See also *Cucumis melo*.
Mu-yu shu, *Aleurites montana*, 36897.
tree, *Aleurites montana*, 36897.
Myrciaria cauliflora, 36702, 36709, 36888.
Myristica inutilis, 36881.
Myrtle, drooping, *Eugenia ventenatii*, 36272.

Nassella sp., 36349.
Nasturtium, *Tropaeolum* sp.. 36391.
Nau, *Gynopogon bracteolosa*, 36874.
Navel orange. See *Citrus sinensis*.
Navo, *Brassica rapa*, 36301.
Nephrosperma van-houtteana, 36487.
Nicotiana rustica, 36780.
tabacum, 36492–36496.
Nicuri palm, *Cocos coronata*, 36927.
Nitraria schoberi, 36800.
Niu-piu, *Styloma pacifica*, 36883, 36884.
Nona, *Morinda citrifolia*, 36880.
Noo li, *Prunus humilis*, 36721.
sp., 36722.
Nutmeg, *Myristica* sp., 36881.

Oak, cork, *Quercus suber*, 36925.
Oat (China), 36675.
hull-less, 36675.
(Turkestan), 36546–36548.
See also *Avena* spp.
Olea verrucosa, 36679.
Oleaster, *Elaeagnus angustifolia*, 36542–36544.
Olive, wild, *Olea verrucosa*, 36679.
Omahangu, *Pennisetum glaucum*, 36931.
Omakunde, *Vigna sinensis*, 36933.
Onion. See *Allium cepa*.
Operculina tuberosa, 36843.
Opuntia spp., 36350–36357.

Orange, bitter, *Citrus aurantium*, 36636, 36694, 36707.
    (Brazil), 36635–36637, 36689, 36691, 36692, 36694, 36701, 36707.
    (Guatemala), 36265, 36266.
Ormosia monosperma, 36358.
    spp., 36359, 36394.
Oryza longistaminata, 36533.
Ostryopsis davidiana, 36731.

Pa shan ghu, *Ampelopsis aconitifolia*, 36754.
Pah woh, *Lilium* sp., 36627.
Pahudia rhomboidea, 36550.
Pai gho, *Lilium* sp., 36678.
    hsaio tou, *Phaseolus angularis*, 36923.
    loba, *Raphanus sativa*, 36772.
    mei, *Soja max*, 36846.
    ts'ai, *Brassica* spp., 36781–36783.
Palm. See *Acrocomia sclerocarpa*, *Bactris utilis*, *Cocos coronata*, *Nephrosperma van-houtteana*, and *Phoenicophorium borsigianum*.
Panax quinquefolium, 36282, 36596, 36716, 36900.
Panicum miliaceum, 36674.
Papaturro, *Bellucia* sp., 36864.
    agrio, *Bellucia costaricensis*, 36535.
Papaya (Argentina), 36262.
    (Brazil), 36273, 36275–36278, 36697, 36844.
    (Ceylon), 36280, 36281, 36628.
    (Costa Rica), 36633.
    (Florida), 36930.
    (Hawaii), 36605.
    Karl Schulz, 36273.
    (Samoa), 36489.
    (Transvaal), 36659.
    Watergate, 36277.
  See also *Carica papaya*.
Parinari laurinum, 36882.
Passiflora ligularis, 36362, 36363.
    sp., 36361.
Passion fruit, *Passiflora* spp., 36361–36363.
Pea, *Pisum sativum*, 36369, 36370.
Peach (Brazil), 36703.
    (China), 36664, 36665, 36724, 36725, 36805, 36806, 36807.
    (Chosen), 36717.
    (India), 36485.
    wild. See *Amygdalus davidianc.*
  See also *Amygdalus persica*.
Peanut, *Arachis hypogaea*, 36296–36298.
Pear, *Pyrus* sp., 36802.
Pearl millet, *Pennisetum glaucum*, 36616, 36655, 36931.
Pechevaye, *Bactris utilis*, 36573.
Pei mei, *Soja max*, 36648.
Pennisetum glaucum, 36616, 36655, 36931.
    typhoideum. See *Pennisetum glaucum*.
Pepper, red, *Capsicum annuum*, 36774–36777.
Persea americana, 36270, 36603, 36604, 36687, 36817.
    borbonia, 36623.
    carolinensis. See *Persea borbonia*.
    gratissima. See *Persea americana*.
Persimmon. See *Diospyros* spp.
Peumus boldus, 36279.
Phaseolus angularis, 36838–36840, 36907, 36910–36912, 36921–36923.
    aureus, 36909, 36920.
    coccineus, 36476–36478.
    lunatus, 36479–36484.
    vulgaris, 36395–36475, 36861, 36924.
Phoenicophorium borsigianum, 36486.
Phoenix dactylifera, 36676, 36818–36828.
Physalis sp., 36364.
Picea obovata, 36729.
Pien wu tou, *Soja max*, 36919.
Pimpinella anisum, 36365.
Piñuela de garrobo, *Karatas plumieri*, 36260.
Piptadenia cebil, 36367, 36368.
    sp., 36366.
Piro, *Karatas plumieri*, 36260.
Pistache, *Pistacia* sp., 36263.
Pistacia sp., 36263.
Pisum sativum, 36369, 36370.
Pitanga, *Eugenia uniflora*, 36929.
Pleiogynium solandri, 36606.
Plum (China), 36718–36722, 36804.
    Yellow Ussurian (Siberia), 36607.
  See also *Prunus* spp.
Polakowskia tacaco, 36592.
Pomegranate, *Punica granatum*, 36488.
Pomelo, *Citrus grandis*, 36589, 36698.
Potato (Bolivia), 36656–36658.
    (Peru), 36384.
  See also *Solanum* spp.
Poupartia axillaris, 36899.
    fordii. See *Poupartia arillaris*.
Prickly pear, *Opuntia* spp., 36350–36357.
Pritchardia pacifica. See *Styloma pacifica*.

Proso, *Panicum miliaceum*, 36674.
Prunus davidiana. See *Amygdalus davidiana*.
  humilis, 36721.
  padus, 36723.
  persica. See *Amygdalus persica*.
  salicifolia, 36371.
  salicina, 36804.
  triloba, 36718–36720.
  spp., 36607, 36722.
Psidium guajava, 36372–36374.
Pumpkin, *Cucurbita pepo*, 36330.
Punica granatum, 36488.
Pyrus sp., 36802.

Quebracho, *Schinopsis lorentzii*, 36264.
Quercus suber, 36925.
Quina de Pernambuca, *Coutarea hexandra*, 36661.
Quinoa, *Chenopodium quinoa*, 36305–36312.

Radish, *Raphanus sativus*, 36771, 36772.
Raphanus sativus, 36771, 36772.
Raspberry, *Rubus* sp., 36609.
Red pepper, *Capsicum annuum*, 36774–36777.
Repallo, *Brassica oleracea capitata*, 36299.
  blanco, *Brassica oleracea capitata*, 36300.
Rhamnus sp., 36735.
Ribes spp., 36756, 36856.
Rice, perennial, *Oryza longistaminata*, 36533.
Ricinus communis, 36375, 36377.
Rollinia orthopetala, 36561.
Rosa laevigata, 36638.
  spp., 36857–36859.
Rose (Brazil), 36638.
  (China), 36857–36859.
  See also *Rosa* spp.
Rubus spp., 36571, 36572, 36609, 36758, 36759.

Sambucus racemosa, 36744.
  williamsii, 36745.
San pien huang goo tze, *Chaetochloa italica*, 36796.
  yah, *Dioscorea sativa*, 36629.
Sansapote, *Licania platypus*, 36590, 36591.
Santonica, *Artemisia maritima*, 36814.
Sapindus saponaria, 36376, 36378.
Sapote, white, *Casimiroa edulis*, 36602.
Scarlet runner, *Phaseolus coccineus*, 36476.
Schinopsis lorentzii, 36264.
Schinus terebinthifolius, 36259, 36708.
Schizandra chinensis, 36755.
Schizonotus sorbifolius, 36799.
Scleria polycarpa, 36885.
Scutellaria sp., 36763.
Sea buckthorn, *Hippophaë rhamnoides*, 36743.
Selesele, *Scleria polycarpa*, 36885.
Sesame, *Sesamum orientale*, 36896.
Sesamum orientale, 36896.
Setaria italica. See *Chaetochloa italica*.
Shalil, *Amygdalus persica*, 36485.
Shan yao, *Dioscorea sativa*, 36629.
Siberian larch, *Larix dahurica*, 36728.
Silk tree, *Albizzia julibrissin*, 36810.
Soapberry, *Sapindus saponaria*, 36376, 36378.
Soi, *Dioscorea* sp., 36873.
Soja max, 36576, 36643–36653, 36785, 36809, 36829–36837, 36846–36848, 36901–36906, 36914–36919.
Solanum aculeatissimum, 36271, 36704.
  quitoense, 36597.
  tuberosum, 36384.
  spp., 36379–36383, 36656–36658.
Sorbus sp., 36730.
Sorghastrum stipoides, 36624.
Sorghum, Andjiki, 36683.
  Angom, 36686.
  Bakoa, 36681.
  Chiganzacha-Uwana, 36614.
  (China), 36670–36672, 36795.
  Daneri, 36685.
  Djolomri, 36684.
  Dura sufa, 36639.
  (France), 36935, 36936.
  Fullahkorn, 36681.
  Ganvaii, 36611.
  (German East Africa), 36610–36615.
  (German Southwest Africa), 36932.
  Iilja, 36932.
  (Kamerun), 36680–36686.
  Lugugu, 36613.
  Mekossie, 36680.
  Mfonghuya, 36682.
  Ndagumo, 36612.
  (Sudan), 36639.
  Teleri, 36683.
  Tikarkorn, 36682.
  Utwasimba, 36610.
  Utwewampela, 36615.

Sorghum, Wu ta lang kaoliang, 36670.
  Wuteguineakorn, 36680.
  See also *Holcus sorghum*.
Soursop. See *Annona muricata*.
Soy bean, Chin hwang tou, 36649.
  yuan, 36651.
  tou, 36651, 36915.
  (China), 36785, 36809.
  Ching tou, 36646, 36848.
  (Chosen), 26829–36837.
  Ghu pee doh, 36809.
  Hei chi, 36847.
  Hsiao heo tou, 36645.
  Hwang tou, 36650.
  (Manchuria), 36576, 36643–36653, 36846–36848, 36914–36919.
  Mau doh, 36785.
  Pai mei, 36846.
  Pei mei, 36648.
  Pien wu tou, 36919.
  Ta ching tou, 36916.
  hei tou, 36643.
  lieh hei, 36644.
  pai mei, 36914.
  wu tou, 36918.
  White eyebrow, 36576, 36647.
  Widowers' beans, 36837.
  Yuan tou, 36652.
  See also *Soja max*.
Sphenostylis stenocarpa, 36530.
Spiraea sorbifolia. See *Schizonotus sorbifolius*.
Spruce, *Picea obovata*, 36729.
Squash (China), 36778, 36779, 36913.
  (Peru), 36316–36323, 36325–36327, 36329, 36331–36342.
  See also *Cucurbita* sp.
Stevensonia grandifolia. See *Phoenicophorium borsigianum*.
Stipa spp., 36385, 36386, 36791.
Strawberry, yellow, *Duchesnea indica*, 36757.
Styloma pacifica, 36883, 36884.
Su cheng tou, *Phaseolus vulgaris*, 36924.
Surinam cherry, *Eugenia uniflora*, 36929.
Sze ssu la tze, *Capsicum annuum*, 36774.

Tacaco, *Polakowskia tacaco*, 36592.
Ta ching tou, *Soja max*, 36916.
  hei tou, *Soja max*, 36643.
  lieh hei, *Soja max*, 36644.
  pai mei, *Soja max*, 36914.
  tsao, *Ziziphus jujuba*, 36852.
Ta tzu ku chen, *Hippophaë rhamnoides*, 36743.
  wu tou, *Soja max*, 36918.
Tangerine, *Citrus nobilis deliciosa*, 36634.
Taro. See Dasheen.
Tattas, *Dodonaea viscosa*, 36813.
Tchi tchi, *Stipa* sp., 36791.
Tee ren tze, *Duchesnea indica*, 36757.
Teleri, *Holcus sorghum*, 36683.
Thladiantha dubia, 36798.
Tick trefoil, *Meibomia umbellata*, 36878, 36879.
Tien ts'ai, *Beta vulgaris*, 36773.
Tikarkorn, *Holcus sorghum*, 36682.
Tindalo, *Pahudia rhomboidea*, 36550.
To kwei boun tze, *Zea mays*, 36667.
Tobacco (China), 36780.
  (Java), 36492–36496.
  Kanari, 36492.
  Kedoe, 36496.
  Wonosobo, 36495.
  See also *Nicotiana* spp.
Toluifera sp., 36387.
Tomate extranjero, *Cyphomandra betacea*, 36934.
  francés, *Cyphomandra betacea*, 36934.
  chileno, *Cyphomandra* sp., 36343
Tree tomato, *Cyphomandra* spp., 36343, 36934.
Triticum aestivum, 36392, 36498–36527, 36577–36587, 36622.
  vulgare. See *Triticum aestivum*.
  spp., 36388–36390.
Tropaeolum sp., 36391.
Tsai shu, *Larix dahurica*, 36728.
Tsao, *Ziziphus jujuba*, 36852–36854.
Tsiao ma lien, *Iris ensata*, 36765.
Tsui loba, *Raphanus sativus*, 36771.
Tumbas, *Passiflora* sp., 36361.
Tuna. See *Opuntia* spp.
Tung pai ts'ai, *Brassica pekinensis*, 36783.
Tung-yu, *Aleurites fordii*. See under 36897.
Turnip, *Brassica rapa*, 36301.
Tze kua, *Thladiantha dubia*, 36798.
Tzu li, *Ribes* sp., 36756.

Uto, *Colocasia* sp., 36677.
Uzura-mame, *Vigna sinensis*, 36908.

Vavae, *Ceiba pentandra*, 36886.
Vernicia montana. *See Aleurites montana*.
Vetch, *Vicia* spp., 36786, 36787.

Viburnum opulus, 36732.
  plicatum, 36855.
Vicia faba, 36393.
  spp., 36786, 36787.
Vigna sinensis, 36908, 36933.
Vitis amurensis, 36753.

Walnut. See *Juglans* sp.
  butternut hybrid, 36865.
Water gum, large-leaved, *Eugenia ventenatii*, 36272.
Wheat, Bathurst No. 2, 36577.
  (Bolivia), 36389, 36390, 36392.
  Calbigia, 36622.
  Cedar, 36578.
  Cleveland, 36579.
  Cowra No. 3, 36580.
  Genoa, 36581.
  Gentile rosso, 36622.
  German calbigia, 36622.
  (Italy), 36622.
  John Brown, 36582.
  Jonathan, 36583.
  (New South Wales), 36577–36587.
  (Peru), 36388.
  Red calbigia, 36622.
  Rymer, 36586.
  Sicilian calbigia, 36622.
  Thew, 36587.
  (Turkestan), 36498–36527.
  Wagga No. 19, 36584.
Wheat, Warren, 36585.
  See also *Triticum* spp.
White runner, *Phaseolus coccineus*, 36477, 36478.
  sapote, *Casimiroa edulis*, 36602.
    Harvey, 36602.
Widowers' beans, *Soja max*, 36837.
Wong pa tiao, *Sambucus williamsii*, 36745.
Wood-oil tree. See *Aleurites* spp.
Wormseed, Levant, *Artemisia maritima*, 36814.
Wormwood, *Artemisia* sp., 36797.
Wu ta lang kaoliang, *Holcus sorghum*, 36670.
Wuteguineakorn, *Holcus sorghum*, 36680.

Yam. See *Dioscorea* sp.
Ye mu shu, *Medicago ruthenica*, 36784.
Ygerilla, *Ricinus communis*, 36375, 36377.
Yu kua, *Cucurbita maxima*, 36779.
  mei, *Avena nuda*, 36675.
  tao, *Colocasia* spp., 36677.
  tsao, *Ziziphus jujuba*, 36854.
Yuan tou, *Soja max*, 36652.

Zea mays, 36267–36269, 36667–36669, 36699, 36710–36712, 36889–36895.
Zinnia elegans. See *Crassina elegans*.
Ziziphus jujuba, 36852–36854.
  sativa. See *Ziziphus jujuba*.

Issued August 17, 1917.

U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF PLANT INDUSTRY.

WILLIAM A. TAYLOR, *Chief of Bureau.*

INVENTORY
OF
SEEDS AND PLANTS IMPORTED
BY THE
OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM JANUARY 1 TO MARCH 31. 1914.

(No. 38; Nos. 36937 to 37646.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1917.

BUREAU OF PLANT INDUSTRY.

Chief of Bureau, WILLIAM A. TAYLOR.
Associate Chief of Bureau, KARL F. KELLERMAN.
Officer in Charge of Publications, J. E. ROCKWELL.
Chief Clerk, JAMES E. JONES.

FOREIGN SEED AND PLANT INTRODUCTION.

SCIENTIFIC STAFF.

David Fairchild, *Agricultural Explorer in Charge.*

P. H. Dorsett, *Plant Introducer, in Charge of Plant Introduction Field Stations.*
B. T. Galloway, *Assistant to the Secretary and Plant Pathologist.*
Peter Bisset, *Plant Introducer, in Charge of Foreign Plant Distribution.*
Frank N. Meyer and Wilson Popenoe, *Agricultural Explorers.*
H. C. Skeels, S. C. Stuntz, and R. A. Young, *Botanical Assistants.*
David A. Bisset, Nathan Menderson, and Glen P. Van Eseltine, *Assistants.*
Robert L. Beagles, *Superintendent, Plant Introduction Field Station, Chico, Cal.*
Edward Simmonds, *Superintendent, Plant Introduction Field Station, Miami, Fla.*
John M. Rankin, *Superintendent, Yarrow Plant Introduction Field Station, Rockville, Md.*
J. E. Morrow, *Superintendent, Plant Introduction Field Station, Brooksville, Fla.*
Edward Goucher, *Plant Propagator.*
Collaborators: Aaron Aaronsohn, *Director, Jewish Agricultural Experimental Station, Haifa, Palestine;* Thomas W. Brown, *Gizeh, Cairo, Egypt;* H. M. Curran, *Laurel, Md.;* M. J. Dorsey, *University Farm, St. Paul, Minn.;* H. T. Edwards, *Ridgewood, N. J.;* Dr. Gustav Eisen, *California Academy of Sciences, San Francisco, Cal.;* E. C. Green, *Serviço do Algodão, Rio de Janeiro, Brazil;* A. C. Hartless, *Seharunpur Botanic Gardens, Seharunpur, India;* E. J. Kraus, *University of Chicago, Chicago, Ill.;* Barbour Lathrop, *Chicago, Ill.;* Miss Eliza R. Scidmore, *Yokohama, Japan;* Charles Simpson, *Littleriver, Fla.;* H. P. Stuckey, *Experiment, Ga.;* Dr. L. Trabut, *Director, Service Botanique, Algiers, Algeria;* E. H. Wilson, *Arnold Arboretum, Jamaica Plain, Mass.*

CONTENTS.

Page.
Introductory statement 5
Inventory 11
Index of common and scientific names 93

ILLUSTRATIONS.

PLATE I. Fruits of the gravatá, a Brazilian bromelia, S. P. I. No. 36967 16
II. Plant of the gravatá in the virgin forest near Lavras, Brazil, S. P. I. No. 36967 16
III. Fruits of the grumichama (*Eugenia dombeyi*), S. P. I. No. 36968 16
IV. Fruiting branch of the pitomba (*Eugenia luschnathiana*), S. P. I. No. 37017 16
V. The pitomba tree of Brazil (*Eugenia luschnathiana*), S. P. I. No. 37017 28
VI. An old imbu tree (*Spondias tuberosa*) at Brejo, Brazil, S. P. I. No. 37018 28
VII. Fruits of the cashew (*Anacardium occidentale*), S. P. I. No. 37027 28
VIII. Rheedia edulis, a wild relative of the mangosteen, S. P. I. No. 37384 28
IX. Fruits of the pera do campo of Brazil (*Eugenia klotzschiana*), S. P. I. No. 37392 56
X. An orchard of Chinese persimmons (*Diospyros kaki*), S. P. I., No. 37540 56

INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM JANUARY 1 TO MARCH 31, 1914 (NO. 38; NOS. 36937 TO 37646).

INTRODUCTORY STATEMENT.

While plants adapted to cultivation in the Southern States predominate in this inventory, it is probable that something of interest to nearly everyone who is experimenting with plants will be found described or listed in it, and this introductory statement is designed to point out certain interesting features regarding them which occur to the writer even before sufficient time has elapsed since their introduction to make anyone really familiar with their behavior in this country.

Whether the Kerguelen cabbage (*Pringlea antiscorbutica*, No. 37554), which is a low, sprawling plant with heads of leaves sometimes 18 inches across, that occurs close to the seashore on Kerguelen Island, will ever thrive in this country may be a question, but no doubt those interested in cabbages will be glad to test it. It has a dense white heart and a taste like mustard and cress, though coarser. The *Lü tou* (*Phaseolus aureus*, No. 37078), a bean from which in China a starch that is considered superior to corn or wheat starch is prepared for laundry purposes, deserves to be investigated in this country. A collection of 23 varieties of beans (Nos. 37036 to 37058) from Fusan, Chosen (Korea), may yield some valuable sorts for cultivation in our gardens after they become acclimated. And among the 98 varieties of soy beans secured through Consul General Scidmore, of Seoul (Nos. 37228 to 37325), and similar collections from Pyeng Yang (Nos. 37326 to 37356) and Kongju (Nos. 37396 to 37404), Chosen (Korea), there should be some valuable forms of this remarkable food plant. The eight named varieties (Nos. 37145 to 37152) of Japanese udo from Kanagawa Ken propagated by cuttings will doubtless make it possible to lengthen materially the season of this new spring vegetable.

Nut growers will be interested in testing the English walnut variety (No. 37225) which Dr. Trabut has sent in from the mountains of Algeria, where it has been grown for centuries by the natives and appears to have become fixed in character.

The possibility of greater or less resistance of the Chinese chestnut (*Castanea mollissima*) to the chestnut bark disease will make Frank N. Meyer's discovery of two superior fruiting varieties (Nos. 37547 and 37548) in the region south of Sianfu of peculiar interest.

Varieties of Abyssinian flax from Addis Abeba (Nos. 37085 to 37089), secured through the courtesy of Capt. Sandford, of the British Legation, may be valuable to the students of the flax industry if the peculiar adaptability of Abyssinian barleys to California conditions is an indication of similarity of climate.

Egyptian-cotton growing has become an industry in California, but experimenters are still at work testing different strains, and they may find something of value in a reported nearly wild form from Angola, Africa (No. 37125), which there develops a very strong fiber. Although it is perhaps a question whether American paper manufacturers are yet ready to put on their program the investigation of any grass for paper-pulp purposes, the preliminary trial of *Ischaemum binatum* (No. 37014), which has been experimented with for this purpose in British India, can hardly fail to interest them.

There are now a number of bamboo groves in the Southern States, and the fact has been abundantly demonstrated that there are thousands of square miles of territory which might be covered with species of this remarkable plant. Whether the Takuara bamboo of Paraguay (*Bambos guadua*, No. 37009), which grows on low, sandy lands along the rivers and attains a height of 60 feet, will prove hardy remains to be determined.

The expedition from this office sent to Bahia and Rio de Janeiro to investigate the culture of the navel orange found in occasional use there as a cover crop a species of Crotalaria (No. 36969) which may prove valuable for dry or semiarid orchard lands in this country. Information has come through the same source regarding the use in that region of the fruits of the Macaúba palm (*Acrocomia sclerocarpa*, No. 37382) for hog feed. The thick layer of white, starchy material surrounding the hard kernel is said to be preferred to corn and to be very fattening. The fruit clusters of these palms weigh as much as 65 or 75 pounds.

Of grain crops for trial perhaps the most interesting are the sorghum varieties (Nos. 36960 to 36963), which are grown by the Matabele, Setchuana, Mambukuschu, and Serotse tribes of southwestern Africa, the pearl millet (No. 36959), from German Southwest Africa, and a collection of wheat, rye, barley, and buckwheat (Nos. 37154 to 37167) from the Tulun Experiment Field of Russia.

This inventory contains a number of interesting new fruits as a result of the work of the Brazilian expedition composed of Messrs.

P. H. Dorsett, A. D. Shamel, and Wilson Popenoe. These will be of special interest to experimenters in California, southern Texas, and Florida. They include a large-fruited variety of the cashew (No. 37027), a fruit tree which deserves to be better known in Florida. Not only is its fruit edible, both out of hand and preserved or in the form of an ade, but the nut when roasted is one of the most delicate of all table nuts.

The pitomba (*Eugenia luschnathiana*, No. 37017), a deep orange-colored aromatic fruit of the myrtle family which ripens in December; the imbu (*Spondias tuberosa*, No. 37018), a drought-resistant tree of the caatinga lands of the interior of Brazil, the fruits of which are consumed in great quantities, both fresh and preserved, and also used to a considerable extent in making imbuzada, a drink peculiar to the country, made of the juice and pulp of the fruit mixed with boiling milk; the so-called wild lemon (*Rheedia edulis*, No. 37384), a relative of the mangosteen; the cambucá (*Myrciaria edulis*, No. 37094), a relative of the jaboticaba, with a flavor resembling that of the passion fruit; the grumichama (*Eugenia dombeyi*, No. 36968), another species of the myrtle family, which resembles remotely our cultivated cherry and is pronounced by the members of the expedition one of the most agreeably flavored fruits of its class; the gravatá (No. 36967), a wild relative of the pineapple, with straw-colored, spicy, delightfully acid fruits and a skin containing a strong vegetable acid which attacks the hands, lips, and mouth of anyone thoughtless enough to handle it carelessly; the pera do campo (No. 37392), an extremely interesting wild fruit-bearing bush which has not yet been cultivated, although it bears large pear-shaped aromatic fruits on shoots not over 4 feet high; the laranja da terra (No. 36971), a citrus stock on which in Bahia the navel orange is grown; the laranja selecta (No. 36947), a promising variety of orange which it is thought is likely to mature its fruits in California during spring and summer, and as it has no thorns and produces fruits of ideal shape for packing, it may possibly prove to be of considerable value to citrus growers in Florida and southern California; the lime orange (Nos. 36949 to 36951), with a flavor halfway between that of the orange and the lime; a shaddock reported to be seedless (No. 36946), and a juicy pink-fleshed shaddock (No. 36945) are some of the other introductions of the expedition covered by this inventory.

The Japanese and Chinese persimmon collections now in this country have been materially added to through the introduction of 9 varieties (Nos. 37465 to 37473) collected by Mr. Meyer near Lingpao, Honan; 16 varieties (Nos. 37525 to 37540) from Nantotchu, south of Sianfu; and a collection of 46 varieties (Nos. 37168 to

37213) from Prof. Tanikawa, representing the collection growing at the Okitsu Government Horticultural Experiment Station in Japan. Those interested in the question of stocks for the cultivated pear will want to test the pear-quince hybrid Pyronia (No. 37606), which has been favorably mentioned by Dr. Trabut.

The lime growers on the Florida Keys will doubtless test the Sylhet, or Rungpur, lime (No. 37084), sent in by Mr. A. C. Hartless from Seharunpur, where it is used for softening leather.

Additions to the Chinese jujube collections have been made through the *Ya hu tsao*, or "gourd-shaped jujube" (No. 37069), sent by Dr. Yamei Kin, and the large-fruited jujubes of Lingpao (Nos. 37475 and 37476), where hundreds of acres of this fruit were seen by Mr. Meyer.

The Chinese Cudrania, a close relative of the Osage orange, has proved hardy at Washington; and as many of the Javanese trees have shown their ability to thrive in southern Florida, the introduction of both male and female forms of a Javanese Cudrania with bright orange fruits which are considered edible by the Japanese in Formosa (Nos. 36986, 37015, and 37016) is of interest, in view of the fact that hybrids have already been made between Cudrania and the Osage orange.

The following additions to the shrubs and trees suitable for dooryard and park planting appear in this inventory:

The Sumatra Casuarina (No. 37119), which, if it thrives, can scarcely fail to be more cheerful as a street tree in Florida than the Australian species; the Queensland gold-blossom tree (*Barklya syringifolia*, No. 37134), which bears racemes of golden yellow flowers; *Bauhinia hookeri* (No. 37135) from Australia, which bears white flowers with crimson edges; three hardy Chinese species of Cotoneaster (Nos. 37596 to 37598); five species of barberries (Nos. 37495 to 37499) originally from China and the mountains of tropical Asia; five distinct varieties of the Chinese allspice (*Meratia praecox*, formerly *Chimonanthus fragrans*, Nos. 37487, 37488, and 37522 to 37524), a fragrant flowering shrub of interest to florists; and the large-flowered tropical *Talauma hodgsoni* (No. 37216), which bears blooms 6 inches across, resembling the magnolia.

Chinese names in this inventory have been brought, so far as possible, into accord with the best authorities, the geographic names (except when fixed by decisions of the United States Geographic Board) being given in the form accepted by the Chinese Ministry of Communications Postal Guide. Many of the smaller village names, however, are not listed therein, and in all such cases the location of the village is given with reference to the nearest town mentioned in that reference work.

The manuscript of this inventory has been prepared by Miss May Riley, the botanical determinations of introductions have been made and the notes on geographic distribution compiled by Mr. H. C. Skeels, and the descriptive and botanical notes arranged by Mr. S. C. Stuntz, who has also had general supervision of this inventory, as of all the publications of this office.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., July 29, 1916.

INVENTORY.

36937 and 36938. LINUM USITATISSIMUM L. **Flax.**

From Matania el Saff, Egypt. Presented by Mr. Alfred Bircher, Middle Egypt Botanic Station. Received January 3, 1914.

Secured from two different dealers in flaxseed and therefore given distinct numbers as representing perhaps two distinct varities. For the use of the Office of Cereal Investigations in its work on flax.

36939 and 36940.

From Kalat, Baluchistan. Presented by Capt. S. Williams, assistant political agent, Mastung, Kalat, Baluchistan, India. Received January 3, 1914.

36939. HORDEUM VULGARE L. **Barley.**

"Barley grown in this State." (*Williams.*)

36940. TRITICUM AESTIVUM L. **Wheat.**
(*Triticum vulgare* Vill.)

"Wheat grown in this State." (*Williams.*)

36941. SOLANUM TUBEROSUM L. **Potato.**

From Bogota, Colombia. Presented by Señor J. M. Vargas Vergara, Department of Agriculture. Received January 3, 1914.

"*Papa gruesa*, a variety of *tuquerrena*, selected at random, which will show you the development the tubers reach here, these presumably not being the largest." (*Vargas Vergara.*)

36942 to 36954.

From Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received January 8, 1914.

Quoted notes by Messrs. Dorsett, Shamel, and Popenoe.

36942. CITRUS SINENSIS (L.) Osbeck. **Sweet orange.**

"(No. 42. Bahia, Brazil. December 13, 1913.) Navel orange bud sticks from select tree No. 6, Dr. Fortunato da Silva's place, Cabulla. Circumference of trunk, 21½ inches; height of tree, 14 feet; spread of tree, 17 feet; habit of growth, spreading. Tree 12 feet from coffee bushes. Two main branches, forking 19 inches above ground; foliage dense, dark green; leaves elliptical, medium size, petiole medium size; no thorns. Fruits, June crop, 296; December crop, 14. No variations of fruit noticed. Fruits borne all through the tree and of yellowish brown color for the ripe ones. Navel small to medium size, mostly rudimentary. Brown and cottony scale, lichens, and several fungi on the tree. Very little mottle-leaf and very little gum disease. No plant parasites. Tree about 14 years old. Few dead branches. For trial in California for improved navel types."

36942 to 36954—Contd. (Quoted notes by Mr. Dorsett and others.)

36943. CITRUS MEDICA L. **Citron.**

"(No. 45. Bahia, Brazil. December 19, 1913.) Thirteen cuttings from the grove of Dr. Miguel de Teive e Argollo, Roma, Bahia. Typical citron of commerce of very good quality. For trial in southern California."

36944. CITRUS GRANDIS (L.) Osbeck. **Shaddock.**

"(No. 46. Bahia, Brazil, December 19, 1913.) Bud sticks of sweet shaddock or grapefruit from Dr. Miguel de Teive e Argollo's grove, Roma, Bahia. Large pear-shaped fruit, thick skinned, straw-colored flesh, sweet flavor, somewhat resembling the grapefruit in quality. Tree very productive. For trial in southern California."

36945. CITRUS GRANDIS (L.) Osbeck. **Shaddock.**

"(No. 48. Bahia, Brazil, December 19, 1913.) Thirty bud sticks of pink-fleshed shaddock or grapefruit from the orchard of Dr. Miguel de Teive e Argollo, Roma, Bahia. Mr. Popenoe says this fruit resembles the Indian pummelo. Its shape closely resembles that of a slightly flattened typical *Marsh's seedless* grapefruit, but it is two to four times the size. Very smooth, thick skin. Flesh a beautiful pink color, very attractive and striking. Fairly juicy, strong grapefruit flavor, very few seeds. This fruit is of possible value for use in salads aside from its use as a breakfast fruit. The texture of both the skin and flesh is very tender, which may render this fruit a valuable addition to our citrus fruits for making preserves. Tree productive under unfavorable conditions for fruiting. Very little mottle-leaf or gum disease and apparently resistant to both. Should be tried extensively in both Florida and California and the fruits tested for the manufacture of grapefruit products."

36946. CITRUS GRANDIS (L.) Osbeck. **Shaddock.**

"(No. 49. Bahia, Brazil, December 19, 1913.) Nineteen bud sticks of what was reported to be a seedless shaddock from the orchard of Dr. Miguel de Teive e Argollo, Roma, Bahia. Dr. V. A. Argollo Ferrão says this is the true *laranja tanja*, which is frequently recommended as a stock for budding navel oranges. The tree has very little mottle-leaf or gummosis, and under unfavorable conditions has made a very vigorous and healthy growth. Very productive. Fruits about the size of a typical *Marsh's seedless* grapefruit. Skin rather thick but tender. Flesh tender, juicy, with strong grapefruit flavor, and many seeds. Should be tried in both California and Florida, especially for breeding purposes and as a stock on which to bud the sweet orange."

36947. CITRUS SINENSIS (L.) Osbeck. **Sweet orange.**

"(No. 50. Bahia, Brazil, December 19, 1913.) Seventeen bud sticks of *laranja selecta* from Dr. Miguel de Teive e Argollo's place, Roma, Bahia. Typical fruits, averaging about 150 size (to the box), very smooth, thin skin. Very juicy, juice slightly acid; of excellent quality. Few seeds. This fruit will probably mature in California during the spring and summer seasons and may prove a valuable addition to the summer fruits in that State. Fruits very uniform on the tree, and when started the light-green color changes to deep, somewhat reddish orange. No thorns on the tree. Very vigorous in growth under unfavorable conditions. Fruits ideal shape for packing. Should be tried in Florida and California."

36942 to 36954—Contd. (Quoted notes by Mr. Dorsett and others.)

36948. Citrus sinensis (L.) Osbeck. **Sweet orange.**

"(No. 51. Bahia, Brazil, December 19, 1913.) Thirty-seven bud sticks from navel orange tree No. 1-6-1, grove of Col. Demetrio Luiz de Souza, Cruz do Cosme, Bahia. This tree is the best in the De Souza grove. Height, 18 feet; spread, 21 feet. Habit of growth, spreading; height of head, 18 inches; three main branches; dense dark-green foliage. Leaves elliptical, medium size. Petiole medium, no thorns. Fruits, June crop, 237; December crop, 49; total, 286. No variations observed in the fruits. December fruits yellowish green; navel small to medium, usually rudimentary. Brown and other common scales, lichens, and common fungi on trees. Much mottle-leaf; little gummosis. Tree 25 years old, with few small dead branches. Fruits large, symmetrical, and uniform. Should be tried in California for improved navel type."

36949 to 36951. Citrus spp. **Lime orange.**

From Bahia, Brazil. Collected December 19, 1913.

"Bud sticks of *laranja lima*, or lime orange, from trees 1 to 3, fazenda of Col. João de Teive e Argollo, Agua Comprida, 28 kilometers north of Bahia. Large, thrifty trees; very fruitful. Very little mottle-leaf or gum disease. Dense foliage, large dark-green leaves. Petioles similar to those of the navel orange. Crop borne at different intervals throughout the year, similar to the navel orange. Fruit light green in color, skin medium thick, flesh tender, very juicy, the juice spurting from fruit when cut. Flesh light golden in color, very little rag. Flavor combines that of the orange and lime; very good. With more acid, as the navel orange grown in California shows compared to the same fruit in Bahia, the *laranja lima* will furnish a valuable fruit drink. Five or six seeds were found in the fruits cut. Col. Argollo says trees come true from seed. The trees are more productive than those of the navel orange under the same conditions and sell for more money at Agua Comprida, bringing 100 to 120 reis (3⅓ to 4 cents) apiece throughout the year. While the leaves have the petiole of the navel orange, the shape and serrations resemble more closely those of the leaves of *lima doce*, or sweet lime. Should be tried in California and Florida, more particularly in California. The fruits produced are about the same size as navel oranges grown under the same conditions on Col. Argollo's ranch. Fruits egg shaped and of desirable shape and size for commercial packing. Will average 96 to 175 fruits to the California box."

36949. "No. 52. From tree No. 1. Tree had no thorns."

36950. "No. 53. From tree No. 2. Tree had large thorns."

36951. "No. 54. From tree No. 3. Tree had no thorns."

36952. Pereskia sp.

"(No. 55. Bahia, Brazil, December 19, 1913.) Cuttings of the *surucucú*, from a hedge in front of the orange grove of Col. Frederico de Costa, Matatu, Bahia. The thorns of this plant, of which samples were sent, it was thought might prove valuable for phonograph needles, but trial showed them to be too brittle. The plant grows 15 to 18 feet high, with a cluster of thorns at each leaf axil. For trial in California and Florida."

36942 to 36954—Contd. (Quoted notes by Mr. Dorsett and others.)

36953. Capriola dactylon (L.) Kuntze. **Bermuda grass.**
(*Cynodon dactylon* Pers.)

"(No. 56. Bahia, Brazil, December 19, 1913.) Root cuttings of a grass very similar in general appearance and habit of growth to the Bermuda grass grown in California. From the fields of Col. Frederico de Costa, Matatu, Bahia."

36954. Opuntia sp. **Prickly-pear.**

"(No. 19. Rio de Janeiro, Brazil, November 1, 1913.) Cuttings of a spineless cactus from the garden of Señor José Esteres, rua São Gonçalo, Nictheroy. The plant is about 15 feet high and is used as an ornamental."

36955 to 36958. Colocasia esculenta (L.) Schott. **Dasheen.**

Grown at the Plant Introduction Field Station, Brooksville, Fla., season of 1913.

Tubers of the following; quoted notes by R. A. Young.

"The propagating stock of these strains consists of the tubers of a number of hills selected from S. P. I. No. 19224, a yautia from Paramaribo, Dutch Guiana, presented by Dr. C. J. J. Van Hall, Director of Agriculture, and received September 25, 1906. The corms from these hills were similar in quality, though varying in minor details of color, texture, and flavor."

36955. "A selected strain of dasheen in which the flesh of the corm when cooked is mealy, slightly nutty, and grayish white in color."

36956. "A selected strain of the dasheen in which the flesh of the corm when cooked is rather dry and firm, slightly nutty, and grayish white in color."

36957. "A selected strain of dasheen in which the flesh of the corm when cooked is mealy, of good flavor, and creamy white in color."

36958. "A selected strain of dasheen in which the flesh of the corms when cooked is fine grained and fairly mealy, slightly nutty, and almost white."

36959 to 36963.

From German Southwest Africa. Presented by the imperial governor, Windhoek. Received January 3, 1914.

36959. Pennisetum glaucum (L.) R. Brown. **Pearl millet.**
(*Pennisetum typhoideum* Rich.)

From Caprivizipfel. The native names used by different tribes for this variety, the name of the tribe being given in parentheses after each, are as follows: (No. 1.) *Mausa* (Sesuto and Serotse); *Labelebele* (Setchuana); *Niant* (Matabele); *Mahango* (Mambukuschu).

36960 to 36962. Holcus sorghum L. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Caprivizipfel.

36960. (No. 2.) *Susue.* Generally used term.

36961. (No. 3.) *Murua.* Generally used term. Originally imported from Bechuanaland to Caprivizipfel.

36959 to 36963—Continued.

36962. (No. 4.) The native names used by the different tribes for this variety, the name of the tribe being given in parentheses after each, are as follows: *Marcla amassen* (Sesuto and Serotse); *Lukeriga* (Serotse); *Itumbi* (Mambukuschu); *Mawele* (Setchuana); *Amawele* (Matabele).

36963. HOLCUS SORGHUM L. **Sorghum.**

(*Sorghum vulgare* Pers.)

From Amboland.

(No. 5.) *Red ovambokorn.* Native name not known.

36964. NICOTIANA RUSTICA L. **Tobacco.**

From Odessa, Russia. Presented by Mr. John H. Grout, American consul. Received January 3, 1914.

"*Mahorka.* After consulting with various authorities here, I find that the name *Murchurkee* is not known in Russia, the seed desired evidently being what is known here as *Mahorka*, which I have obtained and am sending." (*Grout.*)

36965. MANGIFERA INDICA L. **Mango.**

From American Samoa. Presented by Commander C. D. Stearns, governor. Received January 7, 1914.

"From fruits which weighed over 2 pounds apiece." (*Stearns.*)

36966. TRIFOLIUM ALEXANDRINUM L. **Berseem.**

From Luxor, Egypt. Collected by Prof. S. C. Mason, of the Bureau of Plant Industry. Received January 2, 1914.

"Next to the rice in the minds of the oasis people comes the Oasis berseem for land reclaiming. They are particular in stating that it does much better following the rice on salty land than Valley berseem. I gathered that they sow about twice as much seed to the acre as we use for alfalfa. Their fields were pastured off so closely that I could not get a clear idea of the nature of their crop or how much it differs from alfalfa." (*Mason.*)

36967 to 36978.

From Bahia, Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received January 8, 1914.

Quoted notes by Messrs. Dorsett, Shamel, and Popenoe.

36967. BROMELIA sp. **Gravatá.**

"(No. 33a. December 6, 1913.) A bromeliaceous plant, allied to the pineapple, which grows in some of the districts around Bahia. The fruit is occasionally brought to market. In form it is oblong and usually somewhat angular, about 3 inches in length and 1 inch thick. The persistent calyx crowns the apex with a tuft of dry sepals about 1 inch in length. The fruit is translucent and of a pale straw color. The skin is about one-eighth of an inch thick, with no well-marked distinction between it and the flesh, which is translucent, crisp, and juicy, containing two or three rows of small, flattened seeds, about one-fourth of an inch in diameter. The flavor is spicy and delightfully acid. The skin must be carefully removed before eating the fruit, as it contains a principle which burns the lips and mouth severely. The fruit is produced indi-

36967 to 36978—Contd. (Quoted notes by Mr. Dorsett and others.)

vidually, not united in one compound fruit as in the pineapple. Should be tried in California and Florida. The name *gravatá* is applied to a number of bromelias here."

For illustrations of the gravatá plant and fruit, see Plates I and II.

36968. Eugenia dombeyi (Spreng.) Skeels. **Grumichama.**
(*Eugenia brasiliensis* Lam.)

"(No. 34a. December 13, 1913.) The *grumichama* or *grumixama*, a myrtaceous fruit, native of Brazil, both for its ornamental value and its fruit is worthy of a careful trial in California and Florida. The tree, which grows to 25 or 30 feet in height, is shapely and densely clothed with glossy deep-green foliage. The individual leaves are elliptical, about 4 inches in length, thick, and leathery. The fruits ripen here in November, and in general appearance very much resemble cherries. The form is round or slightly flattened, the color deep crimson. The stem is 1 inch or more in length. The thin skin incloses a soft, tender pulp, of mild and delicate flavor. The seeds, one to three in number, are rounded or hemispherical, about one-fourth to three-eighth of an inch in length. The grumichama is one of the most agreeably flavored myrtaceous fruits we have tasted, and in addition the tree is a beautiful and shapely ornamental."

For an illustration of the grumichama fruit, see Plate III.

36969. Crotalaria retusa L.

"(No. 35a. December 19, 1913.) Seed from two plants in the orange orchard of Col. Baretto, Cabulla. Plants 2 to 3 feet high, producing from 2 to 5 main branches, each bearing from 6 to 12 seed pods containing 12 to 20 seeds each. Root development extensive, the roots finely branched and covered with medium-sized nodules. The root system closely resembles that of vetch. Stems succulent, and if plowed under at the time would quickly decompose. This plant is self-sown in all the orchards we have visited. Dr. Argollo says it is particularly suited for dry or semidry lands, and he predicts that it may become a very useful cover crop for southern California and other semiarid regions."

36970. Phaseolus vulgaris L. **Bean.**

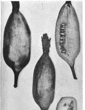
"(No. 36a. December 19, 1913.) The pink bean, *feijão*, which is the source of feijoada, one of the principal foods of the poorer class of Brazilians. Bought in the public market of Bahia at 240 reis (8 cents) per liter. Said to have been grown at Alagoinhas, in the interior of Bahia State."

36971. Citrus aurantium L. **Sour orange**

"(No. 37a. December 19, 1913.) *Laranja da terra.* Seed from fruits grown by Col. Demetrio Luiz de Souza, Cruz do Cosme, near Bahia. This is the principal stock for the *laranja de umbigo*, or navel orange. For trial in California and Florida as stocks for other citrus fruits."

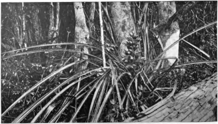
36972. Cocos coronata Mart. **Nicuri palm.**

"(No. 38a. December 19, 1913.) Seeds of the *Nicuri* or *Alicuri* palm, from the vicinity of Matatu, near Bahia. For a description of the plant, see S. P. I. 36927."



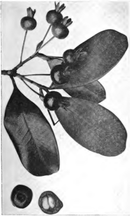
FRUITS OF THE GRAVATÁ, A BRAZILIAN BROMELIA, S. P. I. NO. 36067.

When the outer skin is peeled back the fruit juices are sucked out. The fruit flesh is translucent, crisp, juicy, and delightfully acid. Under the skin is a layer of cells containing a vegetable acid much stronger than that in the pineapple, which attacks the lips and makes them raw. (Photographed (P13037FS) by Dorsett, Shamel, and Popenoe, Bahia, Brazil, November 28, 1913. Natural size.)



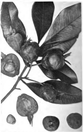
PLANT OF THE GRAVATÁ IN THE VIRGIN FOREST NEAR LAVRAS, BRAZIL, S. P. I. No. 36967.

A wild relative of the pineapple, the fruits of which are brought into the markets of Bahia. Unlike the pineapple, the individual fruits do not form a compact head. These plants should be tested in California and Florida. (Photographed (P14307FS) by Dorsett and Popenoe, January 11, 1914.)



FRUITS OF THE GRUMICHAMA (EUGENIA DOMBEYI), S. P. I. No. 36968.

The deep crimson fruits resemble cherries somewhat in appearance. They have a mild, delicate flavor, which is very agreeable, and they ripen in November in Brazil. (Photographed (P15332FS) by Dorsett, Shamel, and Popenoe, Bahia, Brazil, November 27, 1913. Natural size.)



FRUITING BRANCH OF THE PITOMBA (EUGENIA LUSCHNATHIANA), S. P. I. NO. 37217.

A rare fruit belonging to the myrtle family, which is occasionally cultivated in gardens about Bahia, Brazil. It is orange yellow, with seedy, melting, and juicy, with a very aromatic and pungent odor. (Photographed ([illegible]) by Dorsett, Shamel, and Popenoe, Bahia, Brazil, December 14, 1913. Natural size.)

36967 to 36978—Contd. (Quoted notes by Mr. Dorsett and others.)

36973. Elaeis guineensis Jacq. **Dendê palm.**

"(No. 39a. December 20, 1913.) Seeds of the *Dendê* or *Guinea oil* palm, from trees in the vicinity of Matatu, Bahia. The fleshy pericarp of the seeds furnishes an oil which is an important food product here, especially among the negroes, with whom the palm is said to have come over from Africa. It now grows in an apparently naturalized state on the hillsides about Bahia and in many places is one of the most conspicuous features of the landscape. It is a particularly handsome plant, with long, feathery leaves and a slender trunk sometimes 50 or 60 feet high. It is probably too tropical for California, but may succeed in southern Florida, where it should be given a thorough trial both as an oil producer and as an ornamental plant."

36974. Theobroma cacao L. **Cacao.**

"(No. 40a. December 19, 1913.) Seeds of *Criollo cacao* from the fazenda of Col. João de Teive e Argollo, Agua Comprida, 28 kilometers north of Bahia. For trial in Porto Rico."

36975. Citrus aurantium L. **Orange.**

"(No. 41a. December 19, 1913.) Seeds of *laranja da terra*, from the roça of Señor Pedro F. M. de Amorim, at Brotas, in the suburbs of Bahia. See S. P. I. No. 36971. For trial as a stock for commercial fruits in California."

36976. Zea mays L. **Corn.**

" (No. 42a. December 19, 1913. *Catete* corn, yellow flint, ears with 12 rows of kernels. Said to have been grown at Alagoinhas, in Bahia State."

36977. Garcinia sp. **African mangosteen.**

"(No. 43a. December 19, 1913.) Seeds of the *Mangostão da Africa*, from the fields of Dr. Miguel de Teive e Argollo, Roma, Bahia. The name 'African mangosteen' implies that it is a Garcinia, and it has every appearance of being a member of that genus. The plant is young, about 6 feet high, broad and spreading, with oblong, elliptical, leathery, thick leaves. The fruits are broadly pyriform, about 1½ inches in length, bright orange in color. The skin is thin and surrounds a small mass of bright orange pulp in which the two very large oval seeds are embedded. The flavor is acid, but pleasant. To be grown in connection with the mangosteen experiments. May prove desirable as a stock for the mangosteen."

36978. Caryophyllus jambos (L.) Stokes. **Rose-apple.**
(*Eugenia jambos* L.)

"(No. 44a. December 19, 1913.) Seeds of a good form of the *jambo* or rose-apple, from a tree on the grounds of Dr. Miguel de Teive e Argollo, Roma, Bahia. Fruits of good size and quality, the skin pale yellow. For trial in Florida and California as an improved form of this fruit."

36979 to 36983.

From Paris, France. Purchased from Vilmorin-Andrieux & Co. Received January 3, 1914. For the work of the Office of Forage-Crop Investigations.

36979 to 36983—Continued.

36979 and 36980. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

36981. HOLCUS HALEPENSIS L. **Johnson grass.**
(*Sorghum halepensis* Pers.)

36982. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

36983. PENNISETUM GLAUCUM (L.) R. Brown. **Pearl millet.**
(*Pennisetum typhoideum* Rich.)

36984. MUSA sp. Banana.

Collected by Dr. H. L. Shantz, of the Bureau of Plant Industry, in 1913, on the plantation of Mr. E. Z. Blackman, Miami, Fla. Received January 13, 1914.

"The plant is about 10 feet high and the fruit about 5 feet from the ground. It is thought that these plants may be the result of early importations made by the United States Department of Agriculture from the Philippines." (*Shantz.*)

36985 and 36986.

From Hongkong, China. Presented by Mr. W. J. Tutcher, superintendent, Botanical and Forestry Department. Received January 15, 1914.

36985. FORTUNELLA HINDSII (Champ.) Swingle. **Hongkong kumquat.**
(*Atalantia hindsii* Oliver.)

"A shrub with compressed branchlets, ovate-elliptical, leathery leaves 1½ to 3 inches long, bearing small flowers in axillary clusters, followed by small orange-colored fruits." (*Tutcher.*)

Distribution.—Found on the wooded hills in the vicinity of Hongkong, China.

"The Hongkong kumquat (*Fortunella hindsii*) differs from the round kumquat (*F. japonica*), the oval kumquat (*F. margarita*), and the Meiwa kumquat (*F. crassifolia*) in a number of morphological characters, some of them of decided taxonomic significance in this group. It may be regarded as constituting a new subgenus.

"*Protocitrus* Swingle. Differs from *Eufortunella* (1) in having the ovary hypomerous (3 or 4 celled, not 5 celled); (2) in the ovary wall of the mature fruits having on the inside between the stalks of the pulp vesicles a number of minute wartlike pale-yellow, cellular masses; (3) in having the dissepiments of the fruit dry and the peel thin and not very fleshy; (4) in having shorter, broader, more brachytic flowers; (5) in having leaves with the veins more prominent on both faces, and less pallid below.

"The two most important characters distinguishing the subgenus *Protocitrus* from *Eufortunella* are the few-celled ovary and the dimorphic *emergences* from the ovary wall of the fruit, viz, ordinary pulp vesicles and verruciform tufts of loosely aggregated more or less colored cells.

"The Hongkong kumquat, which, as already indicated, is the sole species of the subgenus *Protocitrus*, may be described as follows:

"A spiny shrub or small tree; twigs slender, angled when young; leaves oval-elliptical, tapering sharply at both ends, dark green above and faintly venose, paler and venose below; petioles winged, often merging into the lamina of the leaf without a separative joint. Flowers short,

36985 and 36986—Continued.

broad, not opening very widely; pistil very short; style shorter than the ovary; stigma large, cavernous; ovary 3 or 4 celled; ovules 2 in a cell. Fruits small, 1.5 to 2 cm. in diameter; subglobose, bright orange red when ripe, the color of a tangerine orange; pulp vesicles very few, small, fusiform; seeds thick, oval or ovate in outline, plump, 9 to 11 by 7 to 8 by 5 to 6 mm., pistache green in section.

"The Hongkong wild kumquat grows commonly on the dry hills about Hongkong and on the mainland of China opposite." (*W. T. Swingle, Jour. Wash. Acad. Sci., vol. 5, p. 174–175, 1915.*)

36986. CUDRANIA JAVANENSIS Trecul.

"The fruit is round, rather more than an inch in diameter, of a bright orange color, with a sweet, rather insipid taste. It is quite as good a fruit as many others which are eaten." (*Tutcher.*)

Distribution.—A shrub or small tree found in eastern Africa and in India and eastward and southeastward to China and through the Malayan Archipelago to Australia.

36987. CARICA PAPAYA L. **Papaya.**

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received January 13, 1914.

"The *Dapitan*, or Singapore variety, recognized by us as distinct from the Hawaiian variety." (*Barrett.*)

36988 to 36990.

From St. Denis, Island of Reunion. Presented by Mr. August de Villiles. Received January 6, 1914.

36988. PHASEOLUS CALCARATUS Roxb. **Rice bean.**

"The rice bean is cultivated to a limited extent in Japan, China, India, Mauritius, Java, and the Philippines. What is supposed to be the wild original of this bean occurs in India.

"The plant is strictly an annual and is half twining in habit. Planted in rows, the different varieties grow 12 to 30 inches high and produce vining branches 3 to 6 feet long. The leaves closely resemble those of the common bean, but not infrequently are 3 lobed. The flowers are bright yellow, produced in racemes of 10 to 20. The pods are smooth, slender, falcate, straw colored, brownish, or blackish, 3 to 4 inches long, and burst open readily at maturity. Though very productive of seed, the vining habit of the plant, as well as the shattering, makes it difficult to harvest. The flowers are self-fertile, as when bagged at Arlington Farm they set pods perfectly.

"Like other annual legumes, the later varieties are much larger in growth than the early ones. The late ones are very vigorous in growth and make a thick, dense mass of foliage. Such sorts may prove valuable as cover crops in the South, but, unfortunately, they are all subject to root-knot. This, together with the shattering of the seed, will always militate against their extensive use.

"The varieties differ mainly in their periods of maturity and in the color of the seeds, which are straw-colored, brown, maroon, black, and gray marbled.

36988 to 36990—Continued.

"The plant is well adapted to practically the same area as the cowpea and will doubtless attract attention from time to time. Under present conditions it is very doubtful whether this bean can be economically utilized in this country.

"In different parts of India various vernacular names are given to this bean, among them *Sutri, Sita-mas, Pau maia, Gurush,* and *Gurounsh.*

"In Japan it is called *Tsuru adsuki;* in China, *Mu-tsa* (Shanghai), 'Crab-eye' or 'Lazy-man' pea (Soochow), and 'climbing mountain bean' (Yachow); in Cuba, where introduced, 'little devil,' or 'mambi' bean." (*C. V. Piper.*)

36989. STIZOLOBIUM ATERRIMUM Piper and Tracy. **Mauritius bean.**

For a detailed description of this plant, with discussion of its value, see Bureau of Plant Industry Bulletin 179, entitled "The Florida Velvet Bean and Related Plants," by C. V. Piper and S. M. Tracy, 1910.

36990. VIGNA SINENSIS (Torner) Savi. **Cowpea.**

"A very late, procumbent cowpea of poor habit; apparently of no value." (*C. V. Piper.*)

36991. CARAGANA ARBORESCENS Lam. **Siberian pea tree.**

From Paris, France. Procured from Vilmorin-Andrieux & Co. Received January 9, 1914.

For propagation at the Northern Great Plains Field Station, Mandan, N. Dak.

36992. SOLANUM POLYADENIUM Greenman. **Potato.**

From Soulseat, Castle Kennedy, Scotland. Presented by Mr. J. Aikman Paton. Received January 15, 1914.

"Pubescent throughout, with hirsute spreading hairs intermixed with densely crowded stipitate glands, heavy scented. This very pronounced and very disagreeable odor corresponds absolutely to that which is given off when the leaves of *Ailanthus glandulosa* L. are crushed. It is not found to my knowledge in any other species of *Solanum* (among the tuber-bearing) and is sufficient, aside from its pale-leaved foliage of very peculiar form, resembling that of the tomato, to make it immediately distinguishable from all others. Tubers white; stems somewhat striate-angled; leaves pinnatisect, 5 to 12 centimeters long, 4 to 8 centimeters broad, usually auricled at the base by small subfalcate leaves of reduced axillary branches; segments 7 to 9, lance-oblong to ovate, 1.5 to 4 centimeters long, 0.5 to 2 centimeters broad, somewhat acuminate, obtuse, abruptly contracted below into an oblique subpetiolulate base; intermediate segments much smaller, very unequal, rarely more than a centimeter in length; inflorescence terminating the stem and branches in pedunculate falsely dichotomous, more or less horizontally spreading cymes; flowers several; peduncles 1 to 2.5 centimeters long, jointed; calyx five parted; segments sublanceolate to somewhat oblong, often abruptly contracted into an attenuated apex, persistent; corolla five angled, plicate, about 1 centimeter high and 2 centimeters broad, white; ovary and style glabrous; fruit conical-ovate, 10 to 13 millimeters long, two-thirds to nearly as broad, glabrous. Mexico, State of Hidalgo; limestone hills, El Salto station, September 15, 1902. C. G. Pringle. No. 8692 (herb. Greenman)." (*Greenman, Proc. Am. Acad. Arts and Science, vol. 39, p. 89, 1903.*)

36993. Aleurites fordii Hemsley. Tung tree.

From Hongkong, China. Presented by Mr. George E. Anderson, consul general. Received January 12, 1914.

"Wood-oil nuts from Yingtak, Kwangtung Province, China, which were brought to this office by Mr. M. P. Roach, of this city." (*Anderson.*)

36994 and 36995.

From Saigon, Cochin China. Presented by Mr. P. Morange. Received January 14, 1914.

36994. Coix lacryma-jobi L. **Job's-tears.**

"This is the only variety existing in Cochin China." (*Morange.*)

36995. Feroniella oblata Swingle.

"Spiny tree, 25 to 65 feet high, native to Cambodia and Cochin China; leaves odd-pinnate, three to four pairs; leaflets covered with small whitish hairs, especially when young, pellucid-punctate, oval or obovate, crenulate when young, often emarginate, with a very short petiole; rachis pubescent; flowers in many-flowered panicles, white, very fragrant, usually five parted, with lanceolate pointed petals; stamens four times the number of the petals, anthers large, oval, filaments joined together at the base by the woolly pubescence of the appendices occurring on their inner side; flowers borne in clusters of 3 or 4, flattened spheroid. This species occurs commonly in the forests of Cambodia and is sometimes cultivated by the natives for its flowers which, when young, have a pronounced orange odor and are used as a condiment in sauces." (*W. T. Swingle. In Bailey, Standard Cyclopedia of Horticulture, vol. 3, p. 1219, 1915.*)

36996. Zea mays L. Corn.

From Pago Pago, American Samoa. Presented by Commander C. D. Stearns, Governor of American Samoa. Received January 8, 1914.

"An ear of corn raised in American Samoa. The name of the corn is not known, and it was raised quite by accident, a woman having planted a few seeds." (*Stearns.*)

36997. Solanum tuberosum L. Potato.

From Bogota, Colombia. Presented by Señor J. M. Vargas Vergara, Ministro de Obras Publicas. Received January 9, 1914.

"Seed potatoes which I have received from the region of Pamplona, Department of Santander. While the sample referred to is not precisely that which you desired, since it is not a native potato, and it has been cultivated, I believe, notwithstanding, that it will be of interest to you and I am quoting below the information given me by the prefect of the Province of Pamplona: 'The potato which is sent to-day is known as *papa montañera* and is cultivated in clayey earth at an altitude of 2,000 meters above the level of the sea at a temperature of 18° C.

"'There is a current story that a hunter found in the mountains of this country a plant called potato; he transplanted it into his garden, from which the cultivation has spread and reached to-day a point where considerable numbers are cultivated.'

"It is said that this potato resists very well the shipment to warm countries and keeps well in condition for eating for several months. My attention was called to the excellent condition in which the sample arrived with reference to this last observation, and, moreover, the complete absence of disease and insects, which invariably attack the tubers in other localities." (*Vargas Vergara.*)

36998 to 37001.

From Erfurt, Germany. Purchased from Haage & Schmidt. Received January 7, 1914. For the experiments of the Office of Forage-Crop Investigations.

36998 to 37000. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

36998. Black. **37000.** Brown.

36999. White.

37001. HOLCUS HALEPENSIS L. **Johnson grass.**
(*Sorghum halepensis* Pers.)

37002 and 37003. PHASEOLUS ANGULARIS (Willd.) Wight. Adzuki bean.

From Wakamatsu, Iwashiro, Japan. Presented by Rev. Christopher Noss. Received January 5, 1914.

"The adzuki used in this region seems to be identical with the sample you sent me [S. P. I. No. 17851]. I found only one other sort, the white.

"The Japanese use the adzuki in two ways. They boil them soft and mix them with boiled rice and salt, making a mass called *akameshi* (red food), which is used particularly on certain festive occasions. They also use them in confections, boiling them very soft, straining through a cloth and mixing with sugar in various ways. There is also an adzuki flour, which is used to make the same confections, but is considered less delicious, though more convenient. I should have said that in making the ordinary *an* the boiled adzuki are put through a sieve to remove the hulls and then put into a bag and squeezed to remove the excess of moisture. Brown sugars are commonly employed. One variety, *yokan*, is made by adding *kanten* [isinglass, a gelatine made from seaweed] to the *an*." (*Noss.*)

37002. Common adzuki. **37003.** Yellow adzuki.

37004 and 37005.

From Peking, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received at the Plant Introduction Field Station, Chico, Cal., January 3, 1914. Received here January 8, 1914.

Cuttings of the following; quoted notes by Mr. Meyer.

37004. FORSYTHIA SUSPENSA (Thunb.) Vahl.

"(No. 1044. December 1, 1913.) A variety of golden bell with flowers apparently larger than the ordinary sort commonly found in European and American gardens. Very resistant to drought and able to stand a fair amount of alkali in the soil. Of special value to the drier sections of the United States. Chinese name *Huang shou tan*."

37005. VIBURNUM FRAGRANS Bunge.

"(No. 1045. December 1, 1913.) A viburnum, flowering in spring before the leaves have fully come out, bearing fragrant white flowers, carried erect as round panicles. Somewhat stiff in outlines. Able to withstand drought and alkali to a fair degree. Of value in the drier sections of the United States. Chinese name *T'an ch'un*."

37006 to 37008.

From Chita, Transbaikalia, Siberia. Purchased from Mr. M. M. Timogowitsch by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received January 20, 1914.

37006. PRUNUS SIBIRICA L. **Apricot.**

Baikal apricot.

37007. BETULA FRUTICOSA Pallas. **Birch.**

This shrub, known to the Tungus as *Buhyka* or *Marak*, abounds in the swamps and stony mountains in the subalpine region of Siberia, especially around Lake Baikal, everywhere associated with *Rhododendron dauricum* L. and always resembling it. Steller observed this same shrub beyond the Lena River, and it is frequent in Kamchatka. This species is very similar to *Betula humilis* of Europe, but the leaves are more tapered toward the apex, have usually five or six pairs of veins, and the toothing is finer, sharper, and more regular; the wings of the seed are also comparatively broader than in *humilis*. It is a native of northeastern Europe and Siberia, inhabiting boggy places. (Adapted from *Pallas, Flora Rossica; Schneider, Laubholzkunde;* and *W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 257.*)

37008. MALUS BACCATA (L.) Moench. **Siberian crab apple.**
(*Pyrus baccata* L.)

"Genuine var. *vera*. Transbaikal apple."

"A tree 20 to 40 feet high, forming a rounded, wide-spreading head of branches, the lower ones arching or pendulous at the extremities; trunk 1 to 2 feet in diameter. Leaves 1½ to 3½ inches long, about half as wide; oval or ovate, rounded or tapering at the base, shallowly and bluntly toothed; smooth above, and either smooth or downy beneath; stalks slender, 1 to 2 inches long. Flowers white, produced during April in umbels; each flower 1½ inches across and borne on a slender stalk 1 to 1½ inches long. Fruit three-quarters to seven-eighths of an inch thick, globular, bright red, hollowed at the insertion of the stalk, and with a round scar, but no calyx teeth at the top.

"Widely spread in nature, this species reaches from Lake Baikal, in Siberia, eastward to Manchuria and North China, and the same or a similar tree is found in the Himalayas. Introduced to Kew in 1784. It varies considerably in the downiness of the various parts. Some of the trees in the Kew collection have smooth young shoots, leaves, calyx tube, and flower stalks; others have all these parts downy. The lobes of the calyx appear to be invariably silky hairy inside. As a tree for gardens, the Siberian crab stands in the first rank. It is pretty in April when laden with its abundant white flowers, but its great value and charm are most apparent in autumn, when its plentiful crop of cherrylike crabs turns a brilliant red. They remain long on the leafless branches, and I have seen them lighting up the garden on fine days as late as February. This tree is closely allied to *Pyrus prunifolia*, but the fruit of the latter is more elongated, not indented at the base, and nearly always crowned with the calyx teeth. The late Dr. Regel, about 30 years ago, sent seeds to Kew of about a dozen varieties with names, but when the trees flowered and bore fruit they proved indistinguishable. The fruit of *Pyrus baccata*, although harsh when eaten raw, makes a very excellent jelly." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 278–279.*)

37009 and 37010.

From Puerto Bertoni, Paraguay. Presented by Mr. G. H. Bertoni. Received January 23, 1914.

37009. Bambos guadua Humb. and Bonpl. **Bamboo.**

(*Guadua angustifolia* Kunth.)

"*Takuara*. Native Paraguayan bamboo. Grows by preference in the low, sandy lands along the rivers. Here reaches a height of 15 to 20 meters, and the culm, which reaches a diameter of 10 to 15 centimeters, is used for pots or jars." (*Bertoni.*)

37010. Phaseolus caracalla L.

"Climbing legume very similar to *Phaseolus caracalla*. In good soils grows to large size. It is annual, with good foliage, and in autumn or late summer is covered with beautiful flowers. Much used as an ornamental. This legume, originating in the warm parts of Paraguay, requires much heat for perfect development. In cold regions it generally flowers well, but does not set seed. This is no inconvenience, since the plant is easily propagated from cuttings." (*Bertoni.*)

Received as *Phaseolus bertonii* Franceschi, but apparently merely a form of *P. caracalla*.

37011. Crotalaria mesopontica Taub.

From Kyimbila, German East Africa. Presented by Mr. Ad. Stolz. Received January 15, 1914.

"The base of the stem somewhat ferruginous-villous, resembling *C. emarginata* Boj., but with the apex of the leaflets obtuse or subcordate, mucronulate, calyx hirsute, villous. From West Karagwe on laterite soil at heights of 1,400 to 1,800 meters." (*Engler, Die Pflanzenwelt Ost-Afrikas, p. 207, 1895.*)

"This plant grows very quickly, might be transplanted for annual or perennial cultivations, as it is a perennial bush and forms a cushion of 2 to 3 feet diameter." (*Stolz.*)

37012. Hibiscus sabdariffa L. **Roselle.**

From Donna, Tex. Presented by Mr. Eltweed Pomeroy. Received January 10, 1914.

"Seed collected from plants grown at Donna, Tex. A showy annual. The young calyces and stems and leaves of the plant when cooked make a delicious jelly, similar to that made from cranberries or red currants. The plant requires a long growing season to reach maturity and is injured by light frosts; therefore it is adapted only to the Tropics or the warmer temperate zones." (*Peter Bisset.*)

37013. Artabotrys uncinatus (Lam.) Merrill. **Ylang-ylang.**

(*Artabotrys odoratissimus* R. Br.)

From Gotha, Fla. Presented by Mr. H. Nehrling. Received January 22, 1914.

"A shrub with climbing divaricate branches; young branches slightly pubescent at first, at length glabrous, more or less zigzag; leaves lanceolate or oblong-lanceolate, acuminate, usually acute at the base, glabrous on both sides, glossy and with short, thick petioles, 5 to 10 inches long by 2 to 3 inches broad;

hooked peduncles glabrous, curved downward almost like a spiral, somewhat flattened, usually opposite a leaf, often with the portion of the branch above it more or less aborted, so as to make it appear terminal; calyx three parted, the divisions ovate-acute; petals six, ovate lanceolate, brownish red on the upper part, with broad claws, woolly or pubescent (cotoneux), concave within and constricted between the claws and the limb, the three outer petals about three-fourths of an inch long, somewhat larger than the inner, and relatively broader; ovaries about 8 to 12, gradually tapering upward to the obtuse stigmatic apex, clothed with minute hairs, and containing two basal collateral erect ovules; fruits several, rounded ovoid, abruptly pointed at the apex, nearly sessile, about the size of a walnut inclosed in its hull, at length smooth, lightly punctate, and enclosing two oblong seeds truncated at the base rising side by side from the base, more or less compressed and bearing a marginal groove around the periphery of the hard bony testa. This species was described by Lamarck from specimens collected by Sonnerat in the East Indies and Madagascar. *Artabotrys uncinatus* is frequently planted in the warm regions of the Eastern Hemisphere for the sake of its fragrant flowers." (*W. E. Safford.*)

37014. ISCHAEMUM BINATUM (Retz.) Buse.
(*Spodiopogon angustifolius* Trin.)

From Calcutta, India. Presented by Mr. D. Hooper, Economic Botanist to the Botanical Survey of India. Received January 23, 1914.

"This grass is a wild plant, chiefly produced by root cuttings from old clumps, and its seeds are thus seldom, if ever, harvested. They have to be produced by special requisition, but the plant is abundant in hilly localities, where the simple cultivators seldom care to depart from their established primitive methods." (*Hooper.*)

"A perennial grass, plentiful in drier tracts of India, from Chota Nagpur and Rajmahal to Nepal and Garhwal, also throughout the plains northward, viz, in the Central Provinces, Central India, and Rajputana to the Punjab, Kashmir, and Afghanistan, ascending to altitudes of 7,000 feet. The grass, from the most ancient times, in the localities where it abounds, has been extensively used for making ropes, string, and mats, and utilized in the construction of rope bridges, and to some extent takes the place of jute in agricultural sacking.

"Sir D. Brandis was the first to recognize that Royle, Wallich, and others were in error in overlooking the grass Ischaemum as the most important, if not the true *bhabar*. Stewart (*Jour. Agri. Hort. Soc. Ind., 1863, xiii, 293*), while acknowledging his indebtedness for this correction, expressed the opinion that the grass should in the future play an important part as a paper material; he was thus apparently the first to suggest that use for the grass. Duthie led to a true identification botanically, and Sir George King pioneered the trade as a paper material. In the Annual Report for the Botanic Gardens of Calcutta for 1893–94, he tells us that he had sent home in 1873 samples of the grass to a paper maker in Scotland, who reported favourably on it, and again in 1877 had furnished the late Mr. Routledge, through the India Office, with a consignment for experiment in Sunderland. Investigations were also made in India from 1882, the first by Mr. Deveria, and finally by the Bally Mills Company (Ltd.) and others, until the grass became firmly established as a paper material.

"The *Kew Bulletin* and the *Indian Forester* have devoted much attention to this subject for some years past, and the Annual Administration Reports of the Forest Department have recorded the measures taken to foster and extend production. The grass has thus been systematically placed before the public. It has, in consequence, become an assured paper material, restricted alone by the insufficiency of the supply. The attempt has accordingly been made to cultivate the plant in localities more accessible to the paper mills, thereby lowering the ruinously heavy freight charges. More or less successful experiments of this kind have been conducted in Poona, Mysore, Hyderabad Deccan, and in Hyderabad Sind. Systematic cultivation has also been undertaken in Manbhum, Birbhum, and Murshidabad. In Poona it has been announced that the yield is 24 cwt. of dry grass per acre. It was, however, ascertained that when grown on soils of a better class than in its wild habitat or under warmer and moister conditions, it tends to flower too profusely, and this lowers its value as a paper material.

"In Murshidabad, according to Mr. B. C. Bose, assistant director of agriculture, Bengal, it is now planted in clumps along the borders of mulberry fields. Two cuttings are taken in the year, one in September and the other in March. With irrigation, three or four crops can be had. This is, at any rate, the experience in Poona. The March crop is cut after the grass has flowered and yields very inferior fiber. No steps are taken to remove the flower stalks, no doubt owing to the cost of picking them out. The September crop does not flower and yields the best fiber. The people look upon the formation of the flower stalks as a necessary evil which they have no means of checking." (*Watt, Commercial Products of India.*)

Distribution.—The warmer parts of India, ascending to 7,000 feet in the Himalayas and eastward to China and the Philippines.

37015 and 37016. CUDRANIA JAVANENSIS Trecul.

From Taihoku, Formosa, Japan. Presented by the Bureau of Productive Industry. Received January 23, 1914.

37015. Five male plants. **37016.** Five female plants.

"The fruit of *Cudrania javanensis* is considered edible in Japan, but not eaten with a relish."

37017 to 37028.

From Bahia, Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received January 22, 1914.

Quoted notes, except as indicated, by Messrs. Dorsett, Shamel, and Popenoe.

37017. EUGENIA LUSCHNATHIANA Berg. **Pitomba.**

"(No. 45a. December 20, 1913.) A rare and interesting myrtaceous fruit seen in two gardens at Cabulla, near Bahia, and called by the natives *pitomba*. Berg (in Martius, Flora Brasiliensis) gives Bahia as its habitat, but adds that there are other species which produce edible fruits as well, so this may not necessarily be the above species. Seeds from the gardens of Col. Elvidio Esteres Assis and Dr. Fortunato da Silva, Bahia. The tree is 20 to 30 feet in height, compact, densely foliated, and very handsome in appearance. The individual leaves are elliptical lanceolate, acuminate, about 3½ inches in length, thick and leathery, glossy, deep green above, light green beneath. Veins scarcely discernible on the upper surface. The fruits which are produced on the small branches are broadly obovate in form, about 1 inch in length and seven-eighths of an inch in breadth on an average. The stem is 1 inch or more in

37017 to 37028—Contd. (Quoted notes by Mr. Dorsett and others.)

length, slender. Apex flattened and broad, crowned by the persistent calyx, with four or five green lanceolate sepals one-half inch or more in length. Color of fruit deep orange-yellow, when fully ripe almost bright orange. Skin thin, tender, and easily broken, inclosing a soft melting pulp, bright orange in color, very juicy, and of an acid, very aromatic flavor. The aroma of the fruits themselves is very penetrating. The seeds, normally one in number, but sometimes two, three, or rarely four, are attached to one side of the seed cavity and do not adhere to the flesh. When single the seed is nearly round, slightly less than half an inch in diameter, the seed coat whitish. When more than one, the seeds are hemispherical or angular. The season here is December. The trees which we have seen do not produce as heavy a crop as the *grumichama* or some other myrtaceous fruits, but nevertheless bear fairly abundantly. The fruit is especially esteemed for making jellies and is also used for jams and sherbets, while the negroes relish them when eaten out of hand. The flavor, however, is somewhat acid when they are eaten in this way, and the fruit will probably be of the greatest value for culinary use rather than dessert. The pitomba should be tried in the warmest parts of Florida and California. It seems to be vigorous and easily grown, great numbers of volunteer seedlings springing up around the base of the tree after the fruit has dropped."

For illustrations of the pitomba tree and fruit, see Plates IV and V.

37018. SPONDIAS TUBEROSA Arruda. **Imbu.**

"(No. 46a. December 26, 1913.) Seeds of the *imbu*, from fruits purchased in the Bahia market. This tree is not common here on the coast, but is said to grow profusely on the dry caatinga lands of the interior of Bahia State. The tree is low and spreading in habit, with a dense, umbrageous head of light-green foliage. The leaves are compound, about 6 inches in length. The fruits are oval to nearly round, about 1 inch in diameter on an average, and pale greenish yellow in color when fully ripe. The large, hard seed is surrounded by soft, juicy pulp, of a rather acid flavor, much esteemed when prepared with milk to form the popular *imbuzada*. For trial in California and Florida."

For an illustration of the imbu tree, see Plate VI.

37019. AMBURANA CLAUDII Schwacke and Taub. **Umburana.**

"(No. 47a. December 26, 1913.) *Umburana.* Seed presented by Mr. Gulins Frank, of Conquista, State of Bahia. Said to be a large tree, very common in the interior of that State. The seeds are aromatic and are used by the natives to mix with tobacco."

37020. (Undetermined.)

"(No. 48a. December 26, 1913.) *Fructa de sabão* (soap fruit). Seeds presented by Mr. Gulins Frank, of Conquista, State of Bahia. The ripe fruits are macerated, put in boiling water, and the fat skimmed off as it rises to the surface. The fruit ripens in August and September. The fat is used in place of soap. For trial in California and Florida."

37021. COCOS SCHIZOPHYLLA Mart. **Nicuri palm.**

"(No. 49a. December 26, 1913.) Seeds of the *Nicuri* palm, obtained from trees growing on a hillside at Retiro, near Bahia. For a description of a related species, see S. P. I. No. 36927."

37017 to 37028—Contd. (Quoted notes by Mr. Dorsett and others.)

37022. VIGNA SINENSIS (Torner) Savi. **Cowpea.**

"(No. 50a. December 26, 1913.) *Feijão fradinho.* Two liters of seed cost 280 reis [9 cents] per liter, at Mercado Novo, Bahia. A cowpea used by the natives as food when cooked. Raised in dry lands of the State of Bahia."

37023. PHASEOLUS VULGARIS L. **Bean.**

"(No. 51a. December 26, 1913.) *Feijão preto* or black bean. Grown on dry lands of the interior of Bahia State. Widely used by the Brazilians to make *feijoada.*"

37024. PHASEOLUS VULGARIS L. **Bean.**

"(No. 52a. December 26, 1913.) *Mulata gorda* bean, bought in Mercado Novo at 240 reis [8 cents] per liter. Name means 'fat mulattress.' Raised on dry lands of the interior of Bahia State."

37025. OPUNTIA sp. **Prickly-pear.**

"(No. 44. December 19, 1913.) Pads of a spineless Opuntia secured from Col. Frederico da Costa's place, Matatu, near Bahia, December 8, 1913. There is a large plant at each corner of the avenue leading from the house to the road. The pads are all free from spines."

37026. EUGENIA UNIFLORA L. **Pitanga.**

"(No. 54a. December 26, 1913.) *Pitanga* seed, from the roça of Dr. Miguel de Teive e Argollo, Roma, Bahai. This plant is already grown in California and Florida to a limited extent, but, so far as we know, its value as a hedge plant is not realized in those States. Here in Bahia it is one of the commonest hedges, and seems to be admirably adapted to this use. Seed to be grown for distributing plants in Florida and southern California on a scale large enough to determine its value as a hedge plant for those regions.

"It can be made a most useful and valuable ornamental plant for gardens, for hedges about gardens, city property, and orange groves; and from the fruit a large number of really desirable ices, jams, and preserves can be made. I like it better than the guava, and the trees and fruits are extremely attractive."

37027. ANACARDIUM OCCIDENTALE L. **Cashew.**

"(No. 55a. December 26, 1913.) Seeds of the *cajú manteiga*, from the island of Itaparica. The name means 'butter caju.' The *cajús* of Itaparica are considered the best in this district, and of all the trees on the island the one which produces the *cajú manteiga* is considered one of the very best. The fruits are extremely large, a beautiful light yellow in color, and of good flavor. Should be tried in Florida."

For an illustration of the cashew fruits, see Plate VII.

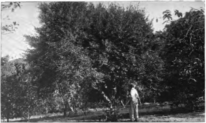
37028. ANACARDIUM OCCIDENTALE L. **Cashew.**

"(No. 57a. December 26, 1913.) Seeds of particularly large and fine specimens of *cajú amarella*, or 'yellow caju,' from Itaparica. See notes under 55a [S. P. I. No. 37027]. For trial in Florida."

37029. PUNICA GRANATUM L. **Pomegranate.**

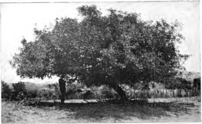
From Algiers, Algeria. Presented by Mr. Bernard G. Johnson. Received January 23, 1914.

"Pomegranate cuttings from the Algerian oasis, Laghouat. I found these pomegranates of exceptionally fine flavor." (*Johnson.*)



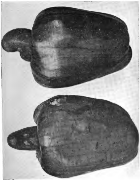
THE PITOMBA TREE OF BRAZIL (EUGENIA LUSCHNATHIANA), S. P. I. No. 37017.

A tropical fruit tree of the myrtle family which deserves to be tested in Florida and southern California because of its value as an ornamental and fruit tree, bearing remarkably attractive, rich orange-yellow fruits about the size and shape of a small Seckel pear, with long persistent sepals. (Photographed (P14549FS) by Dorsett, Shamel, and Popenoe, Bahia, Brazil, December 20, 1913.)



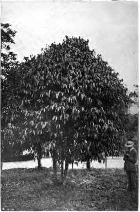
AN OLD IMBÚ TREE (SPONDIAS TUBEROSA) AT BREJO, BRAZIL, S. P. I. No. 37018.

The cattle browse on the lower branches of the imbú and the ground underneath is often carpeted with the plumlike juicy fruits, which are pale greenish yellow in color and of an acid taste. A popular drink called imbuzada is prepared by mixing the pulp with milk. (Photographed (P14630FS) by Dorsett and Popenoe, February 14, 1914.)



FRUITS OF THE CASHEW (ANACARDIUM OCCIDENTALE), S. P. I. No. 37027.

A single tree of this large-fruited variety, which is known as the butter cashew (caju manteiga), occurs on the island of Itaparica, off the coast of Bahia, Brazil. Although it has a good deal of fiber it is exceedingly juicy and beautifully colored. The cashew is popular as a table fruit in Brazil. The cashew nut, one of the best table nuts known, is contained in the kidney-shaped end of the fruit. It is surrounded by a layer of cells containing a very poisonous juice which produces an eruption like that caused by poison ivy, but being volatile this is driven off when the nuts are roasted. (Photographed (P14833FS) by Dorsett, Shamel, and Popenoe, Bahia, Brazil, December 24, 1913. Natural size.)



RHEEDIA EDULIS, A WILD RELATIVE OF THE MANGOSTEEN, S. P. I. NO. 37384.

This small, very handsome tree is known in the region around Lavras, Brazil, as the Limão do matto, or wild lemon, because of the appearance and acid taste of its bright-yellow juicy fruits, which are eaten out of hand and also preserved. It may prove a stock for the mangosteen. (Photographed (P14643FS) by Dorsett and Popenoe, Lavras, Brazil, January 13, 1914.)

37030. Panicum maximum Jacq. **Guinea grass.**

From Mayaguez, Porto Rico. Presented by Mr. D. W. May, Agricultural Experiment Station. Received January 23, 1914.

37031. Hordeum vulgare L. **Barley.**

From Aleppo, Syria. Presented by Mr. Jesse B. Jackson, American consul. Received January 23, 1914.

"Black barley. The grain is very hard, and it is claimed that it will resist insects for five or six years if kept in dry places." (*Jackson.*)

37032 and 37033.

From Pago Pago, American Samoa. Presented by Commander C. D. Stearns, governor. Received February 3, 1914.

37032. Musa sp. **Banana.**

37033. Colocasia sp. **Taro.**

Plants.

37034. Myrciaria cauliflora (Mart.) Berg. **Jaboticaba.**

From Rio de Janeiro, Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received February 2, 1914.

"(No. 19a. November 4, 1913.) Seeds from about 40 pounds of fruits purchased in the public market at a cost of 5 milreis (about one dollar) for the lot. The fruit appears to be of an entirely different type from those the seed of which was sent in under S. P. I. Nos. 36702 and 36709, suggesting that they may even be distinct species, since there are two or more species of Myrciaria in Brazil known under the common name of jaboticaba. The fruit of this variety is uniformly round or slightly oblate in form and variable in size, the best specimens being slightly less than 1 inch in diameter and of about the same length. The skin is smooth and glossy, deep purplish maroon in color over the entire surface. The pulp is very juicy and of pleasant vinous flavor. Seeds one to four, two being the commonest number in good-sized fruits. For further data concerning the jaboticaba, see notes under S. P. I. No. 36702." (*Dorsett, Shamel, and Popenoe.*)

37035. Persea americana Miller. **Avocado.**

(*Persea gratissima* Gaertn. f.)

From Bahia, Brazil. Presented by Dr. V. A. Argollo Ferrão, through Mr. A. D. Shamel, of the Bureau of Plant Industry. Received January 22, 1914.

"Dr. Argollo secured from a friend of his near Bahia a lot of avocado fruits, typical of the best commercial variety, for experimental shipment to New York. These fruits were packed in a tight box and upon arrival in Washington in February, 1914, the fruits were examined for commercial condition. While some of the fruits were found to have carried through the voyage from Bahia to Washington in good condition, most of them were affected by a species of Colletotrichum. This development interfered with the quality of the fruit, so that a satisfactory judgment as to its comparative commercial value was not possible. The fruits were rather pear shaped, with fairly large seeds and a hard rind. The meat was yellowish white and about half an inch in thickness around the seed. The color of the rind was green. The size of the fruits was about 5 to 6 inches long and from 2½ to 3 inches in maximum diameter. Dr. Argollo did not know of any local name for this variety, except the name avocado." (*Shamel.*)

37036 to 37058.

From Fusan, Chosen (Korea). Presented by Rev. George H. Winn, Presbyterian Mission. Received January 28, 1914.

Quoted notes by Mr. Winn.

"The white beans are the ones that are generally raised. In the cultivation of the beans they are generally planted in rows about 2 feet apart, sometimes a little wider, and are well fertilized. Needless to say the weeds are kept down by hand hoeing three or four times during the summer. The beans are planted here in May or early in June and harvested in November as a rule, though even in October we occasionally see the harvesting of the beans in specially well-favored places. The harvesting is entirely done by hand (as is all farm work except plowing) after which the beans are carried to the thrashing floor, where they are thoroughly dried in the sun and thrashed by the flail."

37036 and 37037. SOJA MAX (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

37036. "No. 1. *Yulgochi* bean. Very hardy, will grow and produce where the ordinary beans will not amount to much."

37037. "No. 2. *Kambool.* Very commonly found in the markets."

37038 and 37039. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. **Adzuki bean.**

37038. "No. 3. The gray bean; very hardy, will grow and produce where the ordinary beans will not amount to much."

37039. "No. 4. The white-eye black bean; carefully cultivated and given sufficient fertilizer."

37040 to 37055. SOJA MAX (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

37040. "No. 5. Brown mottled bean; carefully cultivated and given sufficient fertilizer."

37041. "No. 6. Brown. Planted around the edges of the rice fields or where there is a small corner that can be utilized, they are very hardy and will grow and produce where the ordinary beans will not amount to much."

37042. "No. 7. Large white-eyed bean; carefully cultivated and given sufficient fertilizer."

37043. "No. 8. Large green bean. The larger beans are all carefully cultivated and given sufficient fertilizer."

37044. "No. 9. Black mottled brown bean. As a rule, the smaller beans are planted around the edges of the rice fields or where there is a small corner that can be utilized. They are very hardy and will grow and produce where the ordinary beans will not amount to much."

37045. "No. 10. White mottled black bean; carefully cultivated and given sufficient fertilizer."

37046. "No. 11. Ordinary green bean. As a rule, these beans are planted around the edges of the rice fields or where there is a small corner that can be utilized. They are, however, often planted

37036 to 37058—Continued.

in fields. They are very hardy and will grow and produce where the ordinary beans will not amount to much."

37047. "No. 12. Brown mottled bean; often planted around the edges of rice fields and where there is a small corner that can be utilized; very hardy and will grow and produce where ordinary beans will not amount to much."

37048. "No. 13. Large blue bean; carefully cultivated and given sufficient fertilizer."

37049. "No. 14. Large black bean; carefully cultivated and given sufficient fertilizer."

37050. "No. 15. Small black bean; grown around the paddy fields. It is cultivated in larger areas because it is supposed to be extra nourishing, and some seem even to suppose it has medicinal properties, but I fear there is not much to it."

37051. "No. 16. The larger beans are all carefully cultivated and given sufficient fertilizer."

37052. "No. 17. The red bean; carefully cultivated and given sufficient fertilizer."

37053. "No. 18. Black mottled yellow. Small beans which are planted around the edges of the rice fields or where there is a small corner that can be utilized; very hardy and will grow and produce where the ordinary beans will not amount to much."

37054. "No. 19. Maroon bean. One of the larger beans, all of which are carefully cultivated and given sufficient fertilizer; but this is not very commonly found."

37055. "No. 20. Ordinary white bean. One of the larger beans; carefully cultivated and given sufficient fertilizer."

37056. PHASEOLUS AUREUS Roxb. **Mung bean.**

"*Green pot* bean. It is very closely allied to the soy bean, but is not used in making soy as far as I know. It is used in making cakes and candies. It is also eaten with rice, being cooked with it. It is often used for invalids' food, being cooked and strained and made into a sort of gruel."

37057 and 37058. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. **Adzuki bean.**

37057. "*Red pot* bean. The pot bean is very closely allied to the soy bean, but it is not used in making soy as far as I know. It is used in making cakes and candies. It is also eaten with rice, being cooked with it."

37058. "*White pot* bean. This variety is very rarely seen."

37059. PERSEA AMERICANA Miller. **Avocado.**

(*Persea gratissima* Gaertn. f.)

From Pago Pago, American Samoa. Presented by Commander C. D. Stearns, governor. Received February 6, 1914.

37060. PHOENIX DACTYLIFERA L. **Date.**

From Cairo, Egypt. Procured by Mr. S. C. Mason, of the Bureau of Plant Industry. Received January 29, 1914.

"*Saidy* date. Purchased in the market at Abshawai. These dates were sold simply as *Wahi*, or 'desert' dates, to the village merchants, who do not concern themselves about desert names. The trader said they were *Saidy* and were brought from the oasis of Bahariеh, four days' journey, with camel." (*Mason.*)

37061. PERSEA AMERICANA Miller. **Avocado.**

(*Persea gratissima* Gaertn. f.)

From Honolulu, Hawaii. Presented by the Hawaii Agricultural Experiment Station. Received February 2, 1914.

"No. 1454. A chance seedling about 15 years of age; origin unknown. Form pyriform; size small to medium, cavity shallow and somewhat abrupt; stem medium long and quite thick; surface undulating, hard, coriaceous, and slightly pitted and mottled; color green, with small, very abundant yellowish dots; apex a depressed dot; skin quite thin, separating fairly well from the pulp; flesh yellow, running into green at the rind, fine grained, oily, and somewhat buttery, 60 per cent of the fruit; seed very large, conical, fitting loosely in the cavity; flavor rich and nutty. Season, September to January. This tree is very vigorous and symmetrical. Height, 25 feet; spread, 25 feet." (*Higgins, The Avocado in Hawaii.*)

37062 and 37063. SOJA MAX (L.) Piper. **Soy bean.**

(*Glycine hispida* Maxim.)

From Harbin, China. Presented by Mr. Southard P. Warner, American consul, at the request of the American consul at Newchwang. Received February 5, 1914.

See report on the "Soya Bean of Manchuria," 1911.

37062. Grown south of Harbin. **37063.** Grown north of Harbin.

37064. CAMPOMANESIA OBVERSA (Miq.) Berg. **Guadiloba.**

From Asuncion, Paraguay. Presented by the Museum of Natural History. Received January 28, 1914.

"Branching shrub, leaves obovate to lanceolate-oblong, membraneous, puberulent above, pubescent below, peduncle solitary, opposite, 1-flowered. Called *Guadiloba* by the natives in the Province of Minas Geraes, where it is common." (*Martius, Flora Brasiliensis, vol. 14, pt. 1, p. 445.*)

37065 to 37068.

From Buitenzorg, Java. Presented by Dr. C. J. J. Van Hall, Department of Agriculture. Received January 26, 1914.

37065. CROTALARIA QUINQUEFOLIA L.

Distribution.—An erect annual found in India and eastward through the Malay Archipelago to the Philippines.

37066. STIZOLOBIUM VELUTINUM (Hassk.) Piper and Tracy (?).

37067. INDIGOFERA TINCTORIA L. Indigo.

37068. INDIGOFERA HIRSUTA L.

Annual or biennial, suberect, reaching 2 to 4 feet high, the pubescence gray or brown. Leaves short petioled, 2 to 5 inches long; leaflets mem-

37065 to 37068—Continued.

braneous, gray-green, glaucous below, reaching 1 to 2 inches long, densely coated with adpressed hairs; stipules setaceous, plumose. Racemes short peduncled, very dense, 2 to 6 inches long. Calyx one-eighth inch, densely pubescent, teeth setaceous, long, plumose, corolla red, not much exserted. Pod one-half to three-fourths of an inch long, densely clothed like the branches. This species is distributed over tropical Africa, tropical America, Java, Philippines, and north Australia. In India on the plains from the Himalayas (ascending to 4,500 feet in Kumaon) to Ceylon, Ava, and Tenasserim. It flowers during the rainy and cold seasons. (Adapted from *Hooker, Flora of British India, vol. 2, p. 98,* and *Roxburgh, Flora Indica, vol. 3, p. 376.*)

37069 to 37083.

From Tientsin, China. Presented by Dr. Yamei Kin, Peiyang Woman's Medical School and Hospital. Received February 6, 1914.

Material as follows; quoted notes by Dr. Kin, except as indicated.

37069. ZIZIPHUS JUJUBA Miller. **Jujube.**
(*Ziziphus sativa* Gaertn.)

"Bud wood of the *Ya hu tsao,* 'gourd-shaped jujube,' so named on account of the shape of the fruit, which has a constriction in the middle like a gourd. The fruit is said to be large, measuring from 2½ to 3 inches, and is of sweet flavor and crisp texture. Chihli Province."

37070. ZIZIPHUS JUJUBA Miller. **Jujube.**
(*Ziziphus sativa* Gaertn.)

"From Chihli Province. *K'ang tsao.* The very large ones that I spoke of before, of which it took but seven or eight to make a catty. I trust that you will find this bud wood clean, for they say that the *tsao* trees are singularly free from pests. The insects that disturb them apparently confine their labors chiefly to the leaves."

37071. PYRUS sp. **Pear.**

"Bud wood of the *Pan chin li,* 'half catty pear,' so called on account of the large size and good flavor; when well grown two will weigh on an average a catty. It is said to require the yellow earth on a mountain slope for the best development. The flesh is fine and white."

37072 and 37073. PRUNUS ARMENICA L. **Apricot.**

"To be grown in yellow earth which is hot in the daytime, but at night draws moisture from the depths and shows a good dewfall. A mountain slope protected from early cold winds in spring is the favorite locality."

Bud wood.

37072. "*Pai hsiang hsing êrh,* 'white fragrant apricot' from Chihli Province. The wood apparently makes very slow growth, for you will perhaps notice that though the branches I send are short, yet there are slight divisions, showing that they are of three years' growth. The directions say to get the wood for budding of one year's growth, but even at three years the branches are to my mind remarkably short. The buds are nice and fat, and the Chinese say they just graft the whole stem in rather than merely bud it."

37069 to 37083—Continued. (Quoted notes by Dr. Yamei Kin.)

37073. "White apricot, round late variety, from Chihli Province."

37074 and 37075. Soja max (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

37074. "*Yüeh ya tou*, literally 'moon-tooth' bean, so called from the edge of the green peeping outside of the black thick skin like the crescent moon in the sky. Is largely used for making bean sprouts, which they say requires a bean that is not mealy or farinaceous, as that kind becomes mushy in the process of germination and has no taste left. Also is good for feeding animals, requiring to be lightly steamed before feeding, not boiled, for then the oil escapes and the flavor is lost. This kind is valued for its oil, which it contains in a great amount, and for making bean curd. This must be grown in a well-drained clay soil; black or moist earth will not do."

37075. "*Cha tou*. Specially used for making bean curd and bean sprouts."

37076. Vigna sinensis (Torner) Savi. **Cowpea.**

"*P'a tou*. A mealy, farinaceous bean just to cook in the ordinary way."

37077. Soja max (L.) Piper. **Soy bean.**

"*Huang tou*. Used for making bean curd as well as starch and vermicelli."

37078. Phaseolus aureus Roxb. **Mung bean.**

"*Lü tou*. This makes a better quality of starch than anything else. It is curious that in China starch for laundry purposes obtained from maize or wheat is not valued so highly as that made from this bean. Vermicelli is also made from the starch of this bean, and one can at once distinguish it from that made from ordinary starch by the fact that it keeps its clearness and shape much better, no matter how much it is boiled. It also has a better flavor and good keeping qualities. Perhaps it might be an addition to the laundry starches of America, as I fancy it would take a much better gloss, as it is harder than the ordinary starch and would not need so much paraffin added to make a gloss. I doubt if the American palate would care for the vermicelli; it is clear, like glass, and the long strings are surpassingly slippery to eat, worse than the round Italian spaghetti."

37079. Phaseolus vulgaris L. **Bean.**

"*Hung yün tou*. Though the bean itself can be eaten, it is usually used with the pod and all, like a string bean, and it is prized generally for its long bearing qualities, producing, once it begins, for three months at least."

37080. Soja max (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

"*Ching tou*. Used only for the oil expressed and fodder purposes."

37081. Dolichos lablab L. **Bonavist bean.**

"*Kuan tung ching*. (The Manchurian peninsula is often spoken of as the Kuan tung district.) The common name is 'old-woman's-ear,' and it is a specialty at the north. The ripe beans can be used like any other

37069 to 37083—Continued.

beans, but are generally used in the pod like string beans. As it grows readily and likes the cold weather, just so that the blossoms do not actually freeze, it thus provides a green bean when the other string beans are gone. In cooking, the object is not to make it soft, but just to plunge it into boiling hot water and not much more than scald it, so that it still remains crisp enough for salad; then it is dressed with vinegar and oil. It should be grown on a trellis. The pods when full grown measure from 4 to 6 inches in length and about 2 inches across; people do not generally wait till it is full grown, but begin to eat it when young, so that the whole pod can be used."

37082 and 37083. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

37082. "Brown kaoliang. Apparently identical with Redstem, S. P. I. No. 22011 (C. I. No. 327), except the peduncle is not red." (*C. R. Ball.*)

37083. "These white varieties go by the common name of 'Stepgrandma White.' Exactly why they should be called 'Stepgrandma' I do not know as yet; possibly I shall hear the legend of it sometime later when I go to the place myself. Used largely for human consumption. Grows to a height of 20 feet."

"Blackhull kaoliang. Undoubtedly the same as Brill Blackhull (Agrost. No. 1442), S. P. I. No. 6710 (Agrost. No. 1457), S. P. I. No. 17920 (C. I. No. 120)." (*C. R. Ball.*)

37084. CITRUS sp. Lime.

From Seharunpur, India. Presented by Mr. A. C. Hartless, superintendent, Government Botanical Gardens. Received January 31, 1914.

"*Sylhet* or *Rungpur*. It is one of our oldest varieties; our oldest catalogue, dated 1854, mentions it. I can not even ascertain why the name of *Sylhet* or *Rungpur* is given to it. These are distinct places in India, and widely apart. It is a very hardy tree, and makes good hedges, always productive and ornamental. I have extracted and kept its juice and found it refreshing, but the natives do not care for it, as it is too sour for them. They use it very largely, however, for softening leather. It forms a part of the daily supply of fruits, as it is used so much for our boots and cleaning. It comes true from seed." (*Hartless.*)

37085 to 37089. LINUM USITATISSIMUM L. Flax.

From Addis Abeba, Abyssinia. Received through the British Legation at that place January 31, 1914.

Quoted notes by Capt. D. A. Sandford.

"Flax (local name, *talba*) grows in most parts of Abyssinia. It is usually sown in July and reaped in November. The natives use it for cooking purposes and its oil also medicinally as a laxative. The general price of the seed is 25 pounds to the dollar (Maria Theresa), but the white variety is preferred to the others and is slightly more expensive."

37085. "Black. From Mundjar, 40 miles east of Addis Abeba. Requires a warmer climate than other varieties."

37086. "White. From Soddo, 25 miles south of Addis Abeba."

37085 to 37089—Con. (Quoted notes by Capt. D. A. Sandford.)

37087. "Dark red. From Boulga, 40 miles northeast of Addis Abeba."

37088. "Black and white. From Soddo, 25 miles south of Addis Abeba. It is sown mixed."

37089. "Red. From Metcha, 40 miles west of Addis Abeba."

37090 to 37095.

From Rio de Janeiro, Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received February 5, 1914.

Quoted notes by Messrs. Dorsett, Shamel, and Popenoe.

37090. MYRCIARIA JABOTICABA (Vell.) Berg. **Jaboticaba.**
(*Myrcia jaboticaba* Baill.)

"(No. 58a. January 5, 1914.) Seeds from a batch of fruits purchased in the market here. The presence of a short stem on the fruit leads to the belief that they are of the species *Myrciaria jaboticaba* and not *M. cauliflora*, of which seeds have already been sent in. The size is variable, the best specimens being about 1 inch in diameter. Color dark purplish maroon. The skin seems a little tougher than the *M. cauliflora* and the flavor is more acid and not quite so pleasant. Seeds normally four, rarely one, two, or more commonly three."

37091. OCOTEA REGELIANA (Meissn.) Mez.

"(No. 59a. January 6, 1914.) Seeds from a tree growing on the hillside above the Hotel Internacional. Slender in form, about 30 feet high, leaves light green, stiff, somewhat glossy, elliptical acute, 2½ to 3 inches long. Fruits oval, three-fourths of an inch long, purplish black, glossy, with a woody calyx. Pulp one-eighth of an inch thick, bluish purple."

37092. GARCINIA sp.

"(No. 60a. January 6, 1914.) Seeds from a tree in the Jardin Botanico bearing the number 54. We believe that this species has already been introduced into the United States, but are sending a few seeds for possible use in connection with the mangosteen experiments."

37093. OCOTEA sp.

"(No. 61a. January 6, 1914.) Seeds of an arborescent shrub growing on the hillside west of the Hotel Internacional. Leaves deep green, thick, oblong-lanceolate, acuminate, 3 to 4 inches in length. For trial as an ornamental in Florida and southern California."

37094. MYRCIARIA EDULIS (Vell.) Skeels. **Cambucá.**
(*Eugenia edulis* Vell.)

"(No. 62a. January 6, 1914.) Seeds of the *cambucá*, from fruits purchased in the market. A very interesting myrtaceous fruit, closely resembling in foliage and general character of fruit the jaboticaba. Leaves lanceolate-elliptical, acuminate, deep green above, lighter green beneath, 4 to 5 inches long. Fruits oblate in form, 2 inches in width and 1½ inches long, sessile, surface smooth, bright orange-yellow in color (Code de Couleurs 156). Skin thin, outer flesh one-fourth of an inch thick, tough and acid, inner pulp or edible portion surrounding the seed about the same thickness, soft, translucent, juicy, of average subacid flavor, somewhat resembling that of *Passiflora edulis*. Seed oval, compressed laterally, one-eighth of an inch long. For trial in Florida and California."

37090 to 37095—Continued.

37095. Bactris caryotaefolia Mart. **Palm.**

"(No. 68a. January 6, 1914.) Seeds from palm fruits bought in the market, where they are called *sucum* (*tucum?*). The thin pulp surrounding the seed is edible, rather acid in flavor. Fruits black, about three-quarters of an inch in diameter. For trial in Florida and California."

37096 to 37099.

From Joinville, Brazil. Presented by Mr. Jean Knatz. Received February 5, 1914.

37096 and 37097. Colocasia esculenta (L.) Schott.

37096. "Green *yama*." **37097.** "Purple *yama*."

37098 and 37099. Xanthosoma sp.

37098. "Green *taya*." **37099.** Purple *taya*."

"The quality of the tubers of these *yamas* and *tayas*, as grown at the Plant Introduction Field Station, Brooksville, Fla., in 1914, was very poor, and the varieties will be of interest mainly for botanical study." (*R. A. Young.*)

37100 to 37102. Echium spp.

From Santa Ursula, Teneriffe, Canary Islands. Presented by Dr. George V. Perez. Received January 26, 1914.

37100. Echium perezii Sprague.

An erect plant, 2 meters high, resembling *Echium wildpretii* in its silky leaves, rose-colored corolla, and long exserted straight filaments, which radiate regularly from its mouth, but differing from that species in the broad lax inflorescence and longer style arms. A recently discovered species from Punta Llana and Barranco del Agua, Punta, Canary Islands, sent to Kew by Dr. George V. Perez, for whom the species is named. (Adapted from *Kew Bulletin, 1914, pp. 210 and 267.*)

37101. Echium pininana Webb and Berth.

"A very rare plant indeed." (*Perez.*)

For previous introduction and description, see S. P. I. No. 32263.

37102. Echium wildpretii Pearson.

For previous introduction and description, see S. P. I. No. 35097.

37103. Durio zibethinus Murray. Durian.

From Singapore, Straits Settlements. Presented by Mr. I. Henry Burkhill, Botanic Gardens, Singapore. Received February 6, 1914.

See S. P. I. No. 28082 for previous introduction.

"Civet-cat fruit. A very large, handsome, pyramid-shaped tree, native of the Malayan Archipelago, and commonly cultivated in the Straits, Burma, Java, etc., for the sake of its celebrated fruit. The latter is produced on the older branches, varies somewhat from round to oval in shape, and usually weighs from 5 to 7 pounds or more. It is armed with thickly set, formidable prickles about one-half inch long; when ripe it becomes slightly yellow, and possesses an odor which is intensely offensive to most people, especially on first acquaintance with it. The cream-colored pulp surrounding the seed is the edible portion; this is most highly prized by the Malays and other oriental people, and is also relished by Europeans who acquire a taste for it. Firminger describes it as 'resembling blancmange, delicious as the finest cream,' whilst Mr. Russell Wallace considered that 'eating durians is a sensation worth a voyage to the East.' The large seeds may be roasted and eaten like chestnuts. Pounded into flour, they are said to be sometimes made into a substance like 'vegetable ivory.' The durian tree thrives in the moist low country of Ceylon up to 2,000 feet elevation, and luxuriates in deep alluvial or loamy soil. In Peradeniya gardens there are magnificent specimens well over 100 feet in height. They usually flower in March and April, and the fruit is ripe in July or August. Durian fruits are variable in size, shape, flavor, and quantity of pulp, according to variety. The trees also vary in productiveness, some varieties being almost barren. Selection and high cultivation should, therefore, be practiced in order to obtain the best fruits. The tree is readily propagated by seed if sown fresh; the seed is of short vitality and germinates in seven to eight days." (*Macmillan, Handbook of Tropical Gardening and Planting.*)

37104 to 37116.

From Zaria, Northern Nigeria, Africa. Presented by Mr. K. T. Rae, Department of Agriculture. Received February 4, 1914.

Quoted notes by Mr. Rae.

37104 to 37111. VIGNA SINENSIS (Torner) Savi. **Cowpea.**

37104. "No. 1. *Dariya amariya* (Hausa name). These are grown, though not extensively, in the pagan districts of this province."

37105. "No. 2. *Hunum marini* (Hausa name). These are grown though not extensively, in the pagan districts of this province. They were experimented with for the first time this year, and under unfavorable conditions, with a rainfall of only 27.9 inches, about 5 inches below the average, this variety proved to be the second best yielder, giving 41 pounds per acre."

37106. "No. 3. *Zaria wake* (Hausa name)."

37107. Red. Selected from No. 3. *Zaria wake.*

37108. Spotted. Selected from No. 3. *Zaria wake.*

37109. "No. 4. *Saka-baba-sata.* These cowpeas were experimented with for the first time this year, and under unfavorable conditions, with a rainfall of 27.9 inches, about 5 inches below the average, this variety proved to be the best yielder, giving 56 pounds per acre."

37110. "No. 5. *Farin wake* (Hausa name)."

37111. (No data.)

37112. PHASEOLUS LUNATUS L. **Lima bean.**

"No. 1. Small black and white bean. Edible climbing bean."

37113. PHASEOLUS LUNATUS L. **Lima bean.**

"No. 2. Large pure white bean. Edible climbing bean."

37114 to 37116. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

37114. "No. 1. Locality, Kano. Local name *Kaura.* One of the most common varieties grown here, both for human consumption and for stock."

37104 to 37116—Continued.

37115. "No. 2. Locality, Kano. Local name *Fara fara*. One of the varieties most commonly grown here, both for human consumption and food for stock."

37116. "No. 3. This variety is grown in much smaller amounts and the grain, as will be seen, is a very poorly developed one. This fact would seem to support the statement made on page 146 of Dudgeon's 'Agricultural Products of British West Africa,' i. e., that the stem is particularly rich in saccharine juice and that this variety is mainly used as a cattle food."

37117. ANNONA CHERIMOLA Miller. **Cherimoya.**

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, Department of Agriculture. Received January 30, 1914.

"*Jara.* Fruit tree; hot climate." (*Wercklé.*)

37118. CARICA PAPAYA L. **Papaya.**

From Angola, Africa. Presented by Rev. W. P. Dodson. Received January 26, 1914.

"Seeds that are acclimatized here for a generation. It is not the United States variety, but rather that of South America, and is a most delicious soft fruit that grows abundantly. It ought to grow in southern Florida or southern California, quite south (Imperial Valley)." (*Dodson.*)

37119 to 37121.

From Buitenzorg, Java. Presented by the Department of Agriculture. Received January 29 and February 6, 1914.

37119. CASUARINA SUMATRANA Jungh.

"Introduced as a better style of *Casuarina*, forming a large and more graceful tree than *C. equisetifolia*, used so commonly as a street tree in Florida." (*Fairchild.*)

"A shrub which in greenhouse cultivation may attain a height of 1½ meters or more, excessively branched. Branches spread out, elegantly bent down by the weight of the twigs. Branches, twigs, and little twigs are three cornered, very thin, destitute of leaves, gracefully arched, sometimes pendent, forming by their union plumy masses or a kind of foxtail, the whole of a deep shining green. Few plants are prettier, and above all more suitable for commercial ornamentation, either for bouquets or decorations for ballrooms. This species has a considerable number of thin twigs, which give to the whole an excessive lightness which can be compared to the marabous employed for decorating headdresses. Another advantage yet which these twigs present is that, being completely destitute of leaves, and owing their plumy lightness to the delicacy of the different parts, they retain their ornamental character for a very long time, which does not take place when this character is due to the leaves. This species is cultivated in a light and firm mixture consisting of vegetable mold and peat, to which is added a small quantity of very sandy soil, in pots well drained and relatively large. However, a better way is to cultivate them in the ground in a hothouse, or, at the least, in a good temperate house. Then the plants are very hardy and one can, at need, cut off the branches to make bouquets or other forms of ornamentation.

37119 to 37121—Continued.

It goes without saying that, cultivated in pots, this species will serve in the decoration of apartments, in the filling of jardinieres, etc." (*E. A. Carrière in Revue Horticole, 1889, p. 467.*)

37120. Coix lacryma-jobi L. **Job's-tears.**

For a detailed account of this crop plant, see the Agricultural Ledger, 1904, no. 13.

37121. Cordia suaveolens Blume.

A large boraginaceous tree up to 60 feet in height, with alternate, variable leaves, equal or unequal at the base, acute or slightly obtuse, rotund elliptic or narrowly ovate, papery, hairy in the axils of the nerves; flowers small and white in terminal or axillary cymes. (Adapted from *Koorders and Valeton, Mededeelingen uit 'sLands Plantentuin, vol. 42, p. 69, 1900.*)

37122 to 37124. Carica papaya L. **Papaya.**

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, Department of Agriculture. Received January 31, 1914, in three separate packets, but without varietal names or descriptions.

37125. Gossypium barbadense L. **Cotton.**

From Angola, Africa. Presented by Rev. W. P. Dodson. Received January 26, 1914.

"I have often thought of how highly Egyptian cotton has been spoken of and thought you would like to try some from Angola. As the natives make it up it is very strong. The truth is, that even the natives prize these seeds they are so scarce, owing to the fact that it is practically a wild plant. This cotton is very strong. A single thin cord of it is used by the native to sew up his cloth or mulele. Many old men are found spinning, and ten years ago a few used to weave, but weaving is now almost a lost art. I have in America a sample of the cloth, about four yards of it, sewed together. It is coarse, but good and very strong work. When a native has such a cloth it lasts him for as long as ten years." (*Dodson.*)

37126. Chayota edulis Jacq. **Chayote.**

From Altadena, Cal. Procured from the West India Gardens. Received February 7, 1914.

Secured for experimental work at one of the plant introduction field stations.

37127. Crataegus pinnatifida Bunge. **Hawthorn.**

From Soochow, China. Presented by Mr. N. Gist Gee, Soochow University. Received February 10, 1914.

See S. P. I. No. 35456 for previous introduction and description.

37128. Furcraea elegans Todaro.

From La Mortola, Ventimiglia, Italy. Presented by Mr. Alwin Berger, curator of the garden. Received February 9, 1914.

"This is one of the seventeen species of the genus Furcraea, succulent desert plants from Central America and particularly from Mexico. The perianth is whitish and wheel shaped. The cushions have a swelling at the base, in which respect it differs from Agave, a genus bearing a somewhat close resemblance.

The species of Furcraea are cultivated in much the same way as those of Agave except that the former are given more heat and water. As a rule, Furcraeas bear fruit not more than once and then die without producing suckers. They do, however, produce when in flower an immense number of bulbils which may be used for propagation. It is impossible to say at what size or age the plant will bloom. Grown in pots they may take a century. On the other hand, plants from bulbils have been known to flower in three years. The leaves of *F. elegans* measure 4 to 5 inches at the broadest part and 3 inches above the base. They are rough on the back and are armed with large prickles. The peduncles are from 20 to 25 feet long. The branches are slightly compound and the panicles often reach from 10 to 12 feet." (*L. H. Bailey, Cyclopedia of American Horticulture.*)

Bulbils.

37129 and 37130.

From Lal Bagh, Bangalore, India. Presented by Mr. G. H. Krumbiegel, economic botanist, Mysore Government Botanical Gardens. Received February 9, 1914.

37129. BAMBOS sp. **Bamboo.**

This was received in response to a request for "bamboo rice" listed in the Official Handbook of Exhibits of the Mysore Dasara Industrial and Agricultural exhibition, 1911, among the rices, with the description: "*Kiri bidari* rice (bamboo rice). This is prepared out of bamboo paddy which is grown in the bamboo trees once in 60 years. This is used as food by the poor during distress and also used as medicine for those that are suffering from enlargement of the spleen."

37130. ORYZA SATIVA L. **Rice.**

"*Kembuti bhatta.*"

37131. GARCINIA MULTIFLORA Champion.

From Hongkong, China. Presented by Mr. W. J. Tutcher, Botanical and Forestry Department. Received February 9, 1914.

An opposite-branched clusiaceous shrub, with entire, ovate or obovate, short-stalked, thick leaves, 3 to 3½ inches long, and terminal corymbs of 4-petaled flowers. Common toward the Black Mountain, Hongkong, flowering in the heat of summer. (Adapted from *Bentham, Flora Hongkongensis, p. 25, 1861.*)

37132 and 37133. CUCURBITA PEPO L. Squash.

From Rome, Italy. Presented by Dr. Gustav Eisen. Received February 9, 1914.

"*Zucchetta.* A peculiar kind of squash. This squash is eaten green and while the flower is yet adherent to the fruit, and never when the fruit is ripe, at least I have never seen it eaten at that stage. Used stewed, fried, etc., in many different ways, like squash or green peas. It is most delicious when boiled in fresh butter and is fully equal to tender green peas, though of a different flavor. I prefer *zucchetta* to any other fresh vegetable in this country. Many eat the flowers when the new fruit is not more than 1 or 2 inches long, though generally they are sold when the fruit is between 6 and 10 inches, always while green." (*Eisen.*)

37132. "*Zucchetta nana, 'Cerbero.'*"

37133. "*Zucchetta nana, 'Romana.'*"

37134 to 37144.

From Brisbane, Australia. Presented by Mr. J. F. Bailey, Botanic Gardens, through Dr. E. C. Joss, Portland, Oreg. Received February 4, 1914.

37134. BARKLYA SYRINGIFOLIA Mueller. **Gold-blossom tree.**

This is the only species of a genus belonging to the section of the pea family bearing regular flowers. It is a large tree, with alternate simple coriaceous leaves, which have long stalks, and are in form like those of the lilac (Syringa), but have seven radiating nerves. The flowers are golden yellow, very numerous, and disposed in axillary or terminal racemes. The pods are stalked, about half an inch long, thin, containing few seeds. The plant is a native of eastern Australia, and is found near the Brisbane River. It is commonly known as the *Queensland gold-blossom* tree. The wood is hard, close grained, of a blackish gray color, and might be suitable for tool handles. The tree is, however, of greater value to the horticulturist than to the timber merchant, its pleasant foliage and luxuriant yellow flowers rendering it a pretty object in the gardens. Diameter, 12 to 15 inches; height, 40 to 50 feet. (Adapted from *Lindley, Treasury of Botany; Maiden, Useful Native Plants of Australia, p. 384;* and *Guilfoyle, Australian Plants, p. 70.*)

37135. BAUHINIA HOOKERI Mueller.

"This is a large tree, with a spreading head, usually quite glabrous. Leaflets quite distinct, very obliquely and broadly ovate or obovate, very obtuse, three-fourths of an inch to 1½ inches long, finely 5 to 7 nerved, with a small thick point terminating the petiole between them. Flowers white, edged with crimson, few, in short terminal racemes, the pedicels very short. Calyx glabrous, or nearly so, 1 inch long or even more, the disk-bearing base narrow cylindrical, the free part about as long, divided nearly to the base into five narrow lobes. Petals clawed, ovate, nearly equal, the lamina nearly 1½ inches long, slightly villous outside near the base. Stamens ten, rather longer than the petals. Ovary on a long stipe; stigma large. Pod stipitate, flat, 1 to 1½ inches broad. Northern Australia: Arnhem Bay, Port Essington. Queensland: Broad Sound, Gilbert River, Sutton River, Rockhampton, and islands of Torres Strait." (*Bentham, Flora Australiensis, vol. 2, p. 296, 1864.*)

37136. BRACHYCHITON ACERIFOLIUM Mueller. **Lacebark tree.**
(*Sterculia acerifolia* Cunn.)

This is a semideciduous tree of New South Wales and is commonly called the *Illawarra flame tree, or Lacebark tree.* The flowers are of a bright-red color, which make the trees a conspicuous object at a distance. It attains a height of 60 to 120 feet and a diameter of 2 to 3 feet. The bark is used by the aborigines for making fishing nets. The wood is soft and spongy. (Adapted from *Lindley, Treasury of Botany;* and *Von Mueller, Select Extra-Tropical Plants, p. 81.*)

37137. CASSIA BREWSTERI TOMENTELLA Mueller.

A tree attaining to a height of 30 to 40 feet, with the branches, under side of leaflets, and inflorescence minutely hoary tomentose. The leaflets are small and short and the flowers rather small. The seeds of this

37134 to 37144—Continued.

species appear to be flattened at right angles to the embryo, which, in the other sections of Cassia, lies parallel to the valves. This variety is found in Queensland on hilly pastures and river banks on the Burdikin at Rockhampton, at Port Denis, and on the Fitzroy River. (Adapted from *Bentham, Flora Australiensis, vol. 2, p. 282, 1864.*)

37138. CASTANOSPERMUM AUSTRALE Cunn. and Fraser. **Moreton Bay chestnut.**

See S. P. I. No. 32087 for previous introduction and description.

37139. ERYTHRINA sp.

37140. FICUS MACROPHYLLA Desf. **Moreton Bay fig.**

See S. P. I. No. 3494 for previous introduction and description.

37141. FICUS RUBIGINOSA Desf. **Port Jackson fig.**

This is one of the hardiest of all the fig trees, and very eligible among the evergreen shade trees, particularly for promenades. This fig, like all other figs, exudes a juice when the bark is wounded, but at present it is put to no useful purpose. The resinous exudation of this tree resembles Euphorbium in appearance, and varies in color from dirty yellow or red to almost white, solid, generally brittle, but tough in the interior of large pieces, opaque, with dull and waxlike fracture; at 30° C. it softens and becomes plastic, like gutta-percha, but not sticky, provided it has been previously wetted with water. In its natural state it has neither taste nor odor but evolves an odor like that of wax when heated, and evinces a characteristic taste on being masticated. It is quite insoluble in water, either hot or cold. The greater part of it is soluble in cold alcohol, and a considerable portion of the remainder in hot alcohol. The names commonly given to this plant are *Port Jackson* fig, *narrow-leaved* fig, and *native banyan*. (Adapted from *Maiden, Useful Native Plants of Australia, p. 225,* and *Von Mueller, Select Extra-Tropical Plants, p. 228.*)

37142 and 37143. PHORMIUM TENAX Forster. **New Zealand flax.**

37142. **37143.** Variegated.

37144. STENOCARPUS SINUATUS Endl.

"This tree is known as the 'tulip tree' or 'fire tree' and is so called on account of the brilliancy of its flowers. To the aborigines of northern New South Wales it is known as *yiel-yiel*, or *yill-gill*. The wood is nicely marked, and admits of a good polish. It is close grained, hard, and durable. It is used for staves and veneers, and is also suitable for cabinetwork. It is not a plentiful tree. Diameter 24 inches, height 60 to 70 feet. Northern New South Wales and Queensland." (*Maiden, Useful Native Plants of Australia, p. 600.*)

37145 to 37152. ARALIA CORDATA Thunberg. **Udo.**

From Yokohama, Japan. Procured from L. Boehmer & Co. Roots received February 12, 1914.

"This material came from Kanagawa Ken." (*L. Boehmer.*)

37145. *Kan.*
37146. *Yama.*
37147. *Wase white.*
37148. *Oku white.*
37149. *Yakate red.*
37150. *Yakate white.*
37151. *Wase red.*
37152. *Oku red.*

37153. SCHIZONOTUS SORBIFOLIUS (L.) Lindl.
(*Spiraea sorbifolia* L.)

From Peking, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received February 17, 1914.

"(No. 1046. December 1, 1913.) A variety of the ordinary Sorbus-leaved Spiraea, which is very impartial to adverse conditions. See description of No. 1986a [S. P. I. No. 36799] for further details." (*Meyer.*)

"A shrub 3 to 6 feet high, which suckers freely; stems erect, very pithy, varying from nearly smooth to downy. Leaves 8 to 12 inches long, composed of 13 to 25 leaflets, which are lanceolate, 2 to 3½ inches long, one-half to 1 inch wide; sharply and conspicuously double toothed, green on both sides; usually quite smooth above and the same beneath. Flowers one-third of an inch across, white, produced during July and August in a stiff, erect raceme 6 to 10 inches high; flower stalks downy and glandular; ovaries smooth or nearly so.

"Native of northern Asia from the Ural Mountains to Japan; introduced in 1759. It is distinguished from its near allies *Spiraea lindleyana* and *S. aitchisoni* by its comparatively dwarf, stiff habit, and narrower, stiffer flower panicles. Grown in rich soil it makes a handsome shrub." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 543,* under *Spiraea sorbifolia.*)

Cuttings.

37154 to 37167.

From Tulun, Russia. Presented by Mr. Victor Pissareff, Tulun Experiment Field. Received February 11, 1914.

Quoted notes by Mr. Pissareff.

37154. TRITICUM AESTIVUM L. **Wheat.**
(*Triticum vulgare* Vill.)

"Common summer wheat of the country. Province Irkutsk, latitude 52° 16'; Malta country, 1913."

37155. SECALE CEREALE L. **Rye.**

"Native summer rye. Province of Yakutsk, latitude 62° 1' N."

37156. HORDEUM VULGARE L. **Barley.**

"Summer barley. Province of Yakutsk, latitude 62° 1' N."

37157. TRITICUM AESTIVUM L. **Wheat.**
(*Triticum vulgare* Vill.)

"Summer wheat from native wheat. Somewhat frozen, 1913."

37158. TRITICUM AESTIVUM L. **Wheat.**
(*Triticum vulgare* Vill.)

"Summer wheat *Amerikanka*. Province Yakutsk, latitude 62° 1' N."

37159. TRITICUM DURUM Desf. **Wheat.**

"Summer macaroni wheat. Atbasar Agricultural School, Province of Akmolinsk, crop of 1912."

37160. TRITICUM AESTIVUM L. **Wheat.**
(*Triticum vulgare* Vill.)

"Winter wheat *Sandomyrka*, Province of Tomsk, Siberia."

37161. TRIFOLIUM PRATENSE L. **Red clover.**

"Wild red clover collected at Tulun Experiment Field, Province of Irkutsk, 1913."

37154 to 37167—Continued.

37162. Phleum pratense L. **Timothy.**

"Timothy grass, crop of 1912. Irkutsk, from Bajandai field."

37163. Vicia amoena Fisch. **Vetch.**

"Wild vetch collected at Tulun, Irkutsk, 1913."

37164. Triticum aestivum L. **Wheat.**
(*Triticum vulgare* Vill.)

"Summer wheat. Province of Yakutsk, 1912."

37165. Trifolium lupinaster L. **Clover.**

"Wild clover collected at Tulun, Government of Irkutsk, 1913."

37166. Fagopyrum vulgare Hill. **Buckwheat.**
(*Fagopyrum esculentum* Moench.)

"Native buckwheat, Irkutsk, Malta country, crop of 1913."

37167. Triticum aestivum L. **Wheat.**
(*Triticum vulgare* Vill.)

"Native summer wheat. Province of Yakutsk."

37168 to 37213. Diospyros kaki L. f. **Persimmon.**

From Okitsu, Japan. Presented by Mr. T. Tanikawa, in charge of the Government Horticultural Experiment Station. Received February 19, 1914.

"We take great pleasure in sending you scions of all the *kakis* which we now have in our garden.

"These *kakis* were gathered from several localities of this country as promising varieties. We must confess that it is very difficult to collect all the varieties named in our 'Special Bulletin No. 28,' because many of them are seedlings of some varieties and named by the finder or the cultivator. Such *kakis* are almost always inferior in quality and too scarce in number to be recognized as a variety. For those reasons we regret that we can not send such *kakis* to you." (*Tanikawa.*)

Sweet varieties, as follows:

37168. No. 1. *Tenjin-gosho.*
37169. No. 2. *Ama-hyakume.*
37170. No. 3. *Fuyu.*
37171. No. 4. *Yedoichi.*
37172. No. 5. *Hana-gosho.*
37173. No. 6. *Mizu-shima.*
37174. No. 7. *Jiro.*
37175. No. 8. *Oranda-gosho.*
37176. No. 9. *Oku-gosho.*
37177. No. 10. *Otera.*
37178. No. 11. *Kiara.*
37179. No. 12. *Zenji-maru.*
37180. No. 13. *Ye-gosho.*
37181. No. 14. *Yashima.*
37182. No. 15. *Yedoichi.*
37183. No. 16. *Sekaiichi.*
37184. No. 17. *Tsukiyo.*
37185. No. 18. *Toyo-oka.*
37186. No. 19. *Ogosho.*
37187. No. 20. *Kanro.*

Astringent varieties, as follows:

37188. No. 1. *Handai.*
37189. No. 2. *Shiroto-damashi.*
37190. No. 3. *Saijo.*
37191. No. 4. *Koshu-hyakume.*
37192. No. 5. *Kawa-bata.*
37193. No. 6. *Oyotsu-mizo.*
37194. No. 7. *Takura.*
37195. No. 8. *Akadansu.*

37168 to 37213—Continued.

37196. No. 9. *Yamagaki* (For stocks).
37197. No. 10. *Omidansu.*
37198. No. 11. *Shozayemon.*
37199. No. 12. *Dojo-hachiya.*
37200. No. 13. *Monbei.*
37201. No. 14. *Aizu-mishirazu.*
37202. No. 15. *Fuji.*
37203. No. 16. *Hira-gaki.*
37204. No. 17. *Yotsu-mizo.*
37205. No. 18. *Tanenashi.*
37206. No. 19. *Yemon.*
37207. No. 20. *Hira-tanenashi.*
37208. No. 21. *Meotogaki.*
37209. No. 22. *Yokono.*
37210. No. 23. *Gi-ombo.*
37211. No. 24. *Inayama.*
37212. No. 25. *Obi-shi.*
37213. No. 26. *Onihira.*

37214. Linum usitatissimum L. **Flax.**

From Hoshangabad, Central Provinces, British India. Presented by Mr. A. Howard, Imperial Economic Botanist, Agricultural Research Institute, Pusa, Bengal, India. Received February 20, 1914.

37215. Oryza sativa L. **Rice.**

From Lima, Peru. Presented by Mr. Benton McMillin, American minister. Received February 17, 1914.

"Highland rice, grown in the montaña of Peru. It is a species produced without irrigation and at an elevation several thousand feet above the sea level. It is quite possible you might develop it into a valuable food product." (*McMillin.*)

37216. Talauma hodgsoni Hook. f. and Thoms.

From Sibpur, near Calcutta, India. Presented by the superintendent, Royal Botanic Gardens. Received February 17, 1914.

This is a tender evergreen tree belonging to the Magnoliaceæ. It is 50 to 60 feet tall, bearing cup-shaped fragrant flowers fully 6 inches across and 4 inches deep, blooming in early spring. The ivory-white petals are quite thick and contrast finely with the glaucous purplish blue sepals. Leaves, 8 to 20 by 4 to 9 inches, obovate oblong, cuspidate or obtuse, leathery, glaucous; flowers solitary, terminal; sepals 3 to 5, purple outside, petals, about six in number. This species is a native of the Himalayas, a region which is perhaps richer in handsome magnolialike trees than any other area of equal size in the world. This species grows at altitudes ranging from 5,000 to 6,000 feet. (Adapted from *Hooker and Thomson, Botanical Magazine, pl. 7392,* and *Bailey, Cyclopedia of American Horticulture.*)

37217 and 37218.

From Barberton, Transvaal. Presented by Mr. George Thorncroft. Received February 21, 1914.

37217. Ceropegia thorncroftii N. E. Brown.

"This is a climber 4 to 5 feet, always found growing up an acacia tree in the dry veldt." (*Thorncroft.*)

"*Ceropegia thorncroftii* closely resembles *C. crispata* N. E. Br., not only in its habit and as regards its foliage, but also in having a cluster

37217 and 37218—Continued.

of thick fleshy roots instead of a tuber. But while it is nearly allied to *C. crispata*, *C. thorncroftii* differs markedly from that species in having much smaller flowers characterized by the gibbous projection at the middle of the keel on the inner side of the lobes, of which there is no trace in *C. crispata*. Mr. Lynch informs us that *C. thorncroftii* requires the usual treatment under ordinary tropical conditions of the other species of the genus except that in winter it appears to demand a rather higher temperature than the majority and to prefer a greater degree of dryness. It has done well in the stove, but has not succeeded in the cactus house. The masses of fleshy roots appear to be sensitive to any excess of moisture, especially if associated with too low a temperature." (*Curtis's Botanical Magazine, 1912, tab. 8458.*)

37218. DIMORPHOTHECA SPECTABILIS Schlechter.

"Magenta color, disk purple, attains a height of 2 feet on the mountain stony places, altitude 5,000 feet. This plant appears after the first rains in October, and is burnt off in the winter by the veldt fires. A very beautiful plant." (*Thorncroft.*)

37219. ZEA MAYS L. **Corn.**

From Puerto Bertoni, Paraguay. Presented by Dr. Moises S. Bertoni. Received February 21, 1914.

"Seeds of a new variety of early hard maize, *communis minor*. This is a new variety which we believe will be of great interest in those countries in which the early European maize gives good results with difficulty. It is a new variety which we have obtained in this agronomic station by hybridization and selection of various species of hard and soft maizes of different degrees of earliness. It is almost as early a ripener as the variety of *Early Soft* maize, which serves as the base, and almost as hard and good as the *Hardy Canary* maize, with which it was first crossed. It is notably hardy and drought resistant. The plant is small and of good production." (*Bertoni.*)

37220. PHASEOLUS VULGARIS L. **Bean.**

From Bahia, Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received January 22, 1914.

"(No. 53a. December 26, 1914.) *Mulatinha* (little mulattress), a bean grown on the dry lands of the interior of Bahia State. One liter of seed purchased in the Mercado Novo at 240 reis [8 cents]." (*Dorsett, Shamel, and Popenoe.*)

37221 and 37222.

From Nice, France. Presented by Dr. A. Robertson Proschowsky. Received February 6, 1914.

37221. ANNONA CHERIMOLA L. Cherimoya.

"Seeds of the anona which this year produced a few quite good fruits in my garden. This species fruits every year, but usually the fruits are full of seeds and have little edible substance." (*Proschowsky.*)

37222. SECAMONE WIGHTIANA (Hook. and Arn.) Schumann.
(*Toxocarpus wightiana* Hook. and Arn.)

"Small shrub, showy orange-colored flowers, rather thorny." (*Proschowsky.*)

Distribution.—The Provinces of Hupeh and Kwangtung in China and the islands of Hongkong and Hainan.

37223. Dendrocalamus strictus (Roxb.) Nees. **Bamboo.**

From Lansdowne, India. Collected by Mr. R. S. Woglum, Bureau of Entomology, while on his trip to India in 1911.

"A very useful and strong bamboo of India, formerly used universally for spear shafts. The plant flowers frequently and does not die down after flowering, as is the case with so many bamboos. The culms are said sometimes to reach a height of 100 feet. (*Woglum.*)

37224 and 37225.

From Algiers, Algeria. Presented by Dr. L. Trabut, director, Service Botanique. Received February 20, 1914.

37224. Cordia obliqua Willd.

"A beautiful tree, very vigorous with us, introduced as seed from Cochin China." (*Trabut.*)

Distribution.—Western India, extending from the Punjab region southward to Ceylon.

A small, twisted, boraginaceous tree, up to 20 feet in height, with alternate, ovate leaves, smooth above, hairy on the veins below; and lateral or terminal cincinnal inflorescences of small white flowers. From Java and Sumatra. (Adapted from *Koorders and Valeton, Mededeelingen uit 'sLands Plantentuin, vol. 42, p. 67, 1900.*)

37225. Juglans regia L. **Walnut.**

"The nut has been cultivated in the mountains by the natives from the most ancient times; they propagate them by sowing seed, and they have thus obtained some very fine varieties, which are fixed." (*Trabut.*)

37226. Colocasia antiquorum Schott. **Taro.**

From Mr. H. B. Shaw, who obtained them as a sample from a shipment from Beirut, Syria, imported by M. J. Corbett & Co., brokers, of New York. Corms received February 1, 1914.

"A variety of taro apparently identical with the Egyptian taro. The quality is inferior." (*R. A. Young.*)

37227. Coix lacryma-jobi L. **Job's-tears.**

From Pamplemousses, Mauritius. Presented by the overseer, Royal Botanic Garden. Received February 26, 1914.

37228 to 37325. Soja max (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

From Seoul, Chosen (Korea). Presented by Mr. George H. Scidmore, American consul general. Received February 17, 1914.

"I submit the following information, which has been obtained, for the most part, from the Director of the Department of Agriculture, Commerce, and Industry, of the General Government of Chosen. The same officer has very kindly supplied samples of 98 varieties of soy beans.

"The usual period during which the seed is sown extends from the middle of May to about July 10. In case the sowing is postponed till the latter part of that period the fields from which wheat has already been harvested are used. The soil is first prepared by plowing and is then shaped into small hemispherical hillocks about 4 feet in diameter. The seed is planted in drill holes on the top of these hillocks, 6 or 7 inches being left between drill holes and 5 or 6 seeds being sown together in a hole. As a general rule, no manure or other fertilizer is used, but when it is desired to enrich the soil ashes are most commonly employed.

"After the plants have sprouted sufficiently, the shoots are thinned out so as to leave two or three only to each drill hole. This process takes place at the time of the first weeding. The ground surrounding the plants is gone over with a hoe or other implement two or three times to turn over the soil and to weed the field. The process outlined above gives briefly the method of cultivation generally in use throughout Chosen, and is applicable whether the beans are planted in separate fields by themselves or in the same fields with other crops.

"It is used mainly for its food value, the oil, and the residue as a fertilizer after the oil has been expressed. It is valuable as a food product for both men and cattle, the latter finding it a very excellent fodder when the whole plant is used. The principal food products for human consumption derived from the soy bean are bean paste, soy, bean curd, meal, etc." (*Scidmore.*)

37228. "A1. *Six Months.* Yellow. From South Chusei Province, Koshu district."

37229. "A2. *Widower.* Yellow. From North Heian Province, Seisen district."

37230. "A3. *Broad River.* From South Heian Province, Junan district."

37231. "A4. *White.* Yellow. From North Zenra Province, Chinan district."

37232. "A5. *Early Yellow.* Yellow. From North Heian Province, Kokai district."

37233. "A6. *White Stalk.* Yellow. From Kokai Province, Hakusen district."

37234. "A7. *White.* Yellow. From South Zenra Province, Kokujo district."

37235. "A8. *Chestnut.* Yellow. From Keiki Province, Koka district."

37236. "A9. *Yellow.* From North Heian Province, Jijo district."

37237. "A10. *Rengyo Egg.* Yellow. From North Kankyo Province, Kichishu district."

37238. "A11. *White.* Yellow. From South Chusei Province, Koshu district."

37239. "A12. *Chodan.* Yellow. From Keiki Province, Hotoku district."

37240. "A13. *White.* Yellow. From Kogen Province, Heisho district."

37241. "A14. *White.* Yellow. From North Kankyo Province, Shojo district."

37242. "A15. *Food.* Yellow. From South Keisho Province, Genyo district."

37243. "A16. *Small White.* Yellow. From South Heian Province, Eiju district."

37244. "A17. *White Vegetable.* Yellow. From South Chusei Province, Enki district."

37245. "A18. *Rat's Eye.* Yellow. From Keiki Province, Hotoku district."

37228 to 37325—Continued.

37246. "A19. *Large-Grained White.* Yellow. From South Keisho Province, Sensei district."

37247. "A20. *White Rat's Eye.* Yellow. From North Chusei Province, Injo district."

37248. "A21. *White.* Yellow. From Keiki Province, Kokusan district."

37249. "A22. *Soja bean.* Yellow. From Keiki Province, Kaijo district."

37250. "A23. *White Horse.* Yellow. From Keiki Province, Yojo district."

37251. "A24. *White.* Yellow. From South Zenra Province, Defuku district."

37252. "A25. *White King.* Yellow. From Kokai Province, Inritsu district."

37253. "A26. *White.* Yellow. From South Heian Province, Junan district."

37254. "A27. *Burnt.* Yellow. From Kokai Province, Hakusen district."

37255. "A28. *Rich and Virtuous.* Yellow. From Kogen Province, Seizen district."

37256. "A29. *White.* Yellow. From South Chusei Province, Kinsen district."

37257. "A30. *Early White.* Yellow. From North Heian Province, Neihen district."

37258. "A31. *Soja bean.* Yellow. From Kokai Province, Kinsen district."

37259. "A32. *White Rat's Eye.* Yellow. From Keiki Province, Yochi district."

37260. "A33. *White.* Yellow. From South Kankyo Province, Kosan district."

37261. "A34. *Golden.* Yellow. From North Keisho Province, Jun district."

37262. "A35. *White Rat's Eye.* Yellow. From North Chusei Province Eishun district."

37263. "B1. *Large Date.* Gray. From Keiki Province, Chikusan district."

37264. "B2. *Red.* Gray. From South Heian Province, Eiju district."

37265. "B3. *Tea.* Gray. From South Keisho Province, Shinshu district."

37266. "B4. *Indigo.* Gray. From Keiki Province, Fuhei district."

37267. "B5. *Date.* Gray. From Keiki Province, Maden district."

37268. "B6. *Large Date.* Gray. From Keiki Province, Yojo district."

37269. "B7. *Six Months.* Gray. From South Kankyo Province, Rig district."

37270. "B8. *Swallow.* Gray. From South Keisho Province, Genyo district."

37271. "B9. *Great Date.* Gray. From North Keisho Province, Hok district."

37272. "B10. *Red.* Gray. From Kogen Province, Seizen district."

37228 to 37325—Continued.

37273. "B11. *Date.* Gray. From Keiki Province, Yosen district."

37274. "B12. *Red.* Gray. From North Keisho Province, Neikai district."

37275. "B13. *Red.* Gray. From South Chusei Province, Kosan district."

37276. "B14. *Red.* Gray. From South Kankyo Province, Bunsen district."

37277. "B15. *Red Rat.* Gray. From South Heian Province, Eiju district."

37278. "B16. *Red Rice.* Gray. From Kokai Province, Kokusan district."

37279. "B17. *Rat's Eye.* Gray. From North Heian Province, Kijo district."

37280. "C1. *Blue.* Green. From South Kankyo Province, Tansen district."

37281. "C2. *Bluish.* Green. From Kokai Province, Chosen district."

37282. "C3. *Blue.* Green. From North Chusei Province, Mokusen district."

37283. "C4. *Blue.* Green. From South Chusei Province, Koshu district."

37284. "C5. *Blue.* Green. From Keiki Province, Koka district."

37285. "C6. *Blue.* Green. From North Kankyo Province, Meisen district."

37286. "C7. *Barbarian Blue.* Green. From North Kankyo Province, Kichishu district."

37287. "C8. *Clasped Hands.* Green. From Kogen Province, Waiyo district."

37288. "C9. *Clear Green.* Green. From North Chusei Province, Teisen district."

37289. "C10. *Blue.* Green. From Keiki Province, Yojo district."

37290. "C11. *Blue.* Green. From Kogen Province, Seizen district."

37291. "C12. *Camphor.* Green. From North Kankyo Province, Kichishu district."

37292. "C13. *Blue.* Green. From South Chusei Province, Yokusen district."

37293. "C14. *Blue.* Green. From South Heian Province, Junan district."

37294. "C15. *Small Blue.* Green. From South Chusei Province, Ranho district."

37295. "C16. *Blue.* Green. From South Chusei Province, Eisan district."

37296. "C17. *Clear Blue.* Green. From North Heian Province, Jijo district."

37297. "C18. *Barbarian.* Green. From North Heian Province, Neihen district."

37298. "C19. *Yellow Powder.* Green. From South Keisho Province, Shinshu district."

37228 to 37325—Continued.

37299. "C20. *Yellow Roll.* Green. From South Keisho Province, Genyo district."

37300. "C21. *Blue.* Green. From South Kankyo Province, Bunsen district."

37301. "C22. *Blue.* Green. From North Keisho Province, Genfu district."

37302. "D1. *Black.* From South Kankyo Province, Rigen district."

37303. "D2. *Rich Black.* From North Chusei Province, Seisan district."

37304. "D3. *Black Chestnut.* From South Chusei Province, Taiko district."

37305. "D4. *Black.* From Kogen Province, Koryo district."

37306. "D5. *Large Black.* From South Zenra Province, Nanpei district."

37307. "D6. *Black.* From North Keisho Province, Ennichi district."

37308. "D7. *Black.* From North Zenra Province, Chinan district."

37309. "D8. *Black.* From South Keisho Province, Kicho district."

37310. "D9. *Black Rat's Eye.* Black. From North Chusei Province, Tanyo district."

37311. "D10. *Black.* From North Kankyo Province, Kainei district."

37312. "D11. *Rat's Eye.* Black. From South Zenra Province, Reisui district."

37313. "D12. *Rat's Eye.* Black. From Kokai Province, Inritsu district."

37314. "D13. *Black Vegetable.* Black. From South Kankyo Province, Kanko district."

37315. "D14. *Rat's Eye.* Black. From South Kankyo Province, Bunsen district."

37316. "D15. *Rat's Eye.* Black. From South Keisho Province, Genyo district."

37317. "D16. *Black Rat's Eye.* Black. From Keiki Province, Inchiku district."

37318. "E1. *Confucian Scholar.* Striped. From South Heian Province, Tokusen district."

37319. "E2. *Bird's Egg.* Striped. From Keiki Province, Hotoku district."

37320. "E3. *Bird's Egg.* Striped. From North Keisho Province, Gunl district."

37321. "E4. *Black Striped.* From North Keisho Province, Eisen district."

37322. "E5. *Food.* Striped. From South Zenra Province, Reisui district."

37323. "E6. *Purple.* Striped. From Keiki Province, Hosen district."

37324. "E7. *Red Striped.* From Kokai Province, Choen district."

37325. "E8. *Thousand Tied.* Striped. From North Heian Province, Neihen district."

37326 to 37376.

From Pyeng Yang, Chosen (Korea). Presented by Rev. W. M. Baird, Union Christian College, through the American consul. Received February 17, 1914.

"Bean seeds. I have been unable to find out their characteristics. Many kinds of beans are grown here. I was able to secure some privately; also at one of the public exhibitions I was able to secure from Honorable Matsunagi, governor of this province, who was the patron of the fair, samples of all the seeds exhibited there, but without descriptions." (*Baird.*)

37326 to 37356. Soja max (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

37326. Green.
37327. Brown.
37328. Small black.
37329. Large black.
37330. Cream with tan markings.
37331. Small black.
37332. Large black.
37333. Small green.
37334. Chocolate color, large.
37335. Cream mixed with brown and green.
37336. Chocolate color.
37337. Green.
37338. Cream with black saddle.
37339. Black with white veining.
37340. Green.
37341. Yellow.
37342. Small brown.
37343. Black and white.
37344. Small yellow.
37345. Large yellow.
37346. Black.
37347. Small brown.
37348. Small black.
37349. Yellow.
37350. Dark brown.
37351. Small dark brown.
37352. Black.
37353. Greenish yellow.
37354. Yellow.
37355. Yellow.
37356. Dark brown.

37357 to 37366. Phaseolus angularis (Willd.) W. F. Wight. **Adzuki bean.**

37357. Purple.
37358. Blue black.
37359. Gray mottled.
37360. Blue and gray mottled.
37361. Red and gray mottled.
37362. Red.
37363. Gray.
37364. Gray mottled.
37365. Purplish.
37366. Purplish.

37367 and 37368. Phaseolus aureus Roxb. **Mung bean.**

37367. Very small green.
37368. Small green.

37369 to 37374. Phaseolus vulgaris L. **Bean.**

37369. White with purple spots.
37370. Tan with purple spots.
37371. White and brown.
37372. Black.
37373. Light brown.
37374. Red.

37326 to 37376—Continued.

37375. Vigna sinensis (Torner) Savi. **Cowpea.**

Small, flesh colored.

37376. Pisum sativum L. **Pea.**

37377 to 37379. Holcus sorghum L. **Sorghum.**
(*Sorghum vulgare* Pers.)

From San Giovanni a Teduccio, Italy. Purchased from Dammann & Co. Received January 30, 1914.

37377. "Sugar millet."

37378. "Red seeded."

37379. (No data.)

37380. Diospyros lotus L. **Khurma persimmon.**

From Batum, Russia. Presented by Mr. Leslie A. Davis, American consul, who procured them through the courtesy of Prof. A. N. Krasnoff, director of the botanical garden near Batum. Received February 25, 1914.

37381. Garcinia vidalii Merrill. **Libas.**

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received February 28, 1914.

"(No. 3941. *Libas* seeds.)"

"This characteristic species of Garcinia is a native of the Province of Rizal, Luzon. It is easily recognized by its rather large, numerously veined leaves, which are broadly rounded at the apex and frequently retuse. It is a tree attaining a height of about 12 meters, the branches and branchlets being stout and somewhat angular, brownish or yellowish, rugose when dry. The leaves are opposite, and obovate or elliptical obovate, 15 to 25 cm. long and 8 to 14 cm. wide. The flowers are 5-merous, the staminate ones with stout, 4-angled, about 5 mm. long pedicels. The fruit is fleshy, greenish, and smooth when fresh, subglobose, 5 to 6 cm. in diameter, edible." (*E. D. Merrill, in Philippine Journal of Science, vol. 3, p. 361, 1909.*)

"This species occurs in the Province of Agusan, northeastern Mindanao." (*Barrett.*)

37382 to 37392.

From Lavras, Minas Geraes, Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received February 28, 1914.

Quoted notes by Messrs. Dorsett, Shamel, and Popenoe.

37382. Acrocomia sclerocarpa Martius. **Macaúba palm.**

"(No. 64a. January 22, 1914.) *Macaúba* palm, a beautiful pinnate-leaved species, which grows wild in this region. The trunk reaches a height of 50 feet or more and is profusely covered with sharp spines, varying from 1 to 4 inches in length and black in color. Its distribution in this part of Brazil is very wide; we have observed considerable numbers at altitudes of 900 meters, which leads to the belief that it may prove adaptable to southern California.

37382 to 37392—Contd. (Quoted notes by Mr. Dorsett and others.)

"The leaves are very graceful and somewhat finer than *Cocos plumosa*. As an ornamental plant this palm should be of value. The fruit is produced in clusters sometimes weighing 30 to 40 kilograms. The hard kernel is surrounded by a thick layer of white starchy material, somewhat mucilaginous in texture. Hogs are very fond of the fruits; according to Prof. Hunnicutt, of the Escola Agricola, they will eat them in preference to corn, and they are said to be very fattening."

37383. CUPRESSUS sp. **Cypress.**

"(No. 65a. January 22, 1914.) Seed from a coniferous tree along the main walk leading to the Gymnasio de Lavras. A very handsome tree, compact and symmetrical, glaucous in color. At present the trees are about 20 feet in height. They were introduced here from Sao Paulo."

37384. RHEEDIA EDULIS (Seem.) Planch. and Triana.

"(No. 66a. January 22, 1914.) Seeds from a row of trees growing in the grounds of the Instituto Evangelico. The fruit, which is now ripe, is called *limão do matto* (lemon of the forest) by the natives. The trees are 20 to 25 feet in height, pyramidal in form, and handsome in appearance with their deep-green, glossy foliage. The leaves are 4 to 6 inches in length, oblong lanceolate, acute at the apex, thick, stiff, the veins scarcely visible on the upper surface, prominent beneath. In general characteristics the fruit is almost identical with that of *Rheedia brasiliensis*. The form is elliptical, frequently tapering at both ends, and even prominently pointed at the apex. The length is about 2 inches, diameter 1½ inches, color bright orange-yellow. Stem three-fourths of an inch to 1 inch in length, stout; skin one-eighth of an inch or more in thickness, terebinthine and disagreeable in taste, rather brittle, easily separable from the snowy white pulp which surrounds the seeds. The flavor is acid unless the fruit is almost overripe, and strongly resembles that of *Lansium domesticum*. The character of the pulp is similar to that of the mangosteen, melting, juicy, and beautiful in appearance. The seeds vary from one to three, two being the commonest number, and they are oblong-oval in form, about 1 inch in length, adhering closely to the pulp; when cut, a yellow gamboge oozes out of them. Boys are very fond of this fruit, but the Americans here do not care for it. It is said to make a very superior *doce* or preserve. For trial in California and Florida."

For an illustration of the *Rheedia edulis* tree, see Plate VIII.

37385. EUGENIA sp.

"(No. 67a. January 22, 1914.) A small, guavalike fruit, about three-fourths of an inch in length, oval, orange-yellow in color, produced by a tree 40 to 50 feet in height growing in the virgin forest here. The flower is rather acid but agreeable, and the fruit is very attractive in appearance. For trial in California and Florida."

37386. BEGONIA sp. **Begonia.**

"(No. 69a. January 22, 1914.) A flowering vine growing along the railroad track at Cambuhy, State of Minas Geraes. To be tried in California and Florida."

37387. ZEA MAYS L. **Corn.**

"(No. 70a. January 22, 1914.) Yellow flint corn grown by Pedro de Paulo Lemos, at Pratinha, State of Minas Geraes."

37382 to 37392—Contd. (Quoted notes by Mr. Dorsett and others.)

37388. MELINIS MINUTIFLORA Beauv. **Gordura grass.**

"(No. 71a. January 22, 1914.) Seed of *Capim gordura*, the principal forage grass of this region, from the fazenda of Pedro de Paulo Lemos, at Pratinha, State of Minas Geraes."

37389. CROTALARIA ANAGYROIDES H. B. K.

"(No. 72a. January 22, 1914.) Seed of the *amendoim do matto*, probably a Crotalaria, growing along a watercourse in the Fazenda Modelo of the Instituto Evangelico. A small shrub, 4 to 6 feet high, with bright yellow flowers. For trial in the warmer parts of the United States as a cover crop."

37390. (Undetermined.)

"(No. 73a. January 22, 1914.) A shrub, 6 to 10 feet high, frequent on the campo here. Leaves oblong, obtuse, 2 to 3 inches in length. The fruit is more or less round, about an inch in diameter, and bright orange in color. Surrounding the single large seed is a layer of fibrous pulp, very sweet in taste, and exuding a milky fluid when the fruit is plucked from the stem. For trial in California and Florida."

37391. INDIGOFERA SUFFRUTICOSA Miller. **Indigo.**
(*Indigofera anil* L.)

"(No. 74a. January 23, 1914.) *Anil*, a small wiry shrub, 5 to 6 feet in height, which grows in the pastures around the edge of town. Dr. Argollo, of Bahia, thinks it may prove of considerable value as a cover crop for dry lands. For trial in the southern United States."

37392. EUGENIA KLOTZSCHIANA Berg. **Pera do campo.**

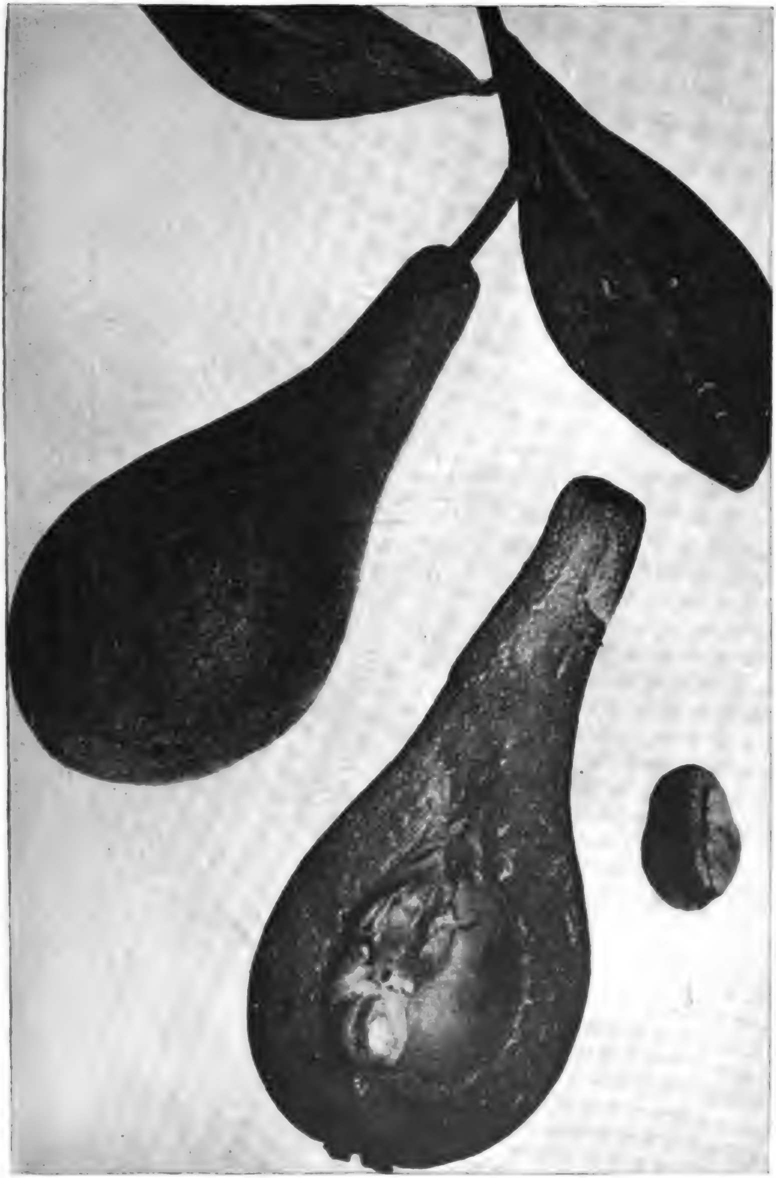
"(No. 75a. January 23, 1914.) *Cabacinha do campo*, or *pera do campo*. A pear-shaped, very fragrant fruit produced by a small wiry shrub occasionally seen on the campo here. The plant grows to a height of 4 or 5 feet under favorable conditions, with very few branches; when growing on land that is pastured it grows only 2 feet high, with many unbranched stems arising from the ground. The leaves are oblong lanceolate, rather hard and tough, tomentose beneath, and alternate. The fruits are strikingly similar in appearance to a small russet pear. They vary from 2 to 3 inches in length and are russet brown in color, with a thick tomentum on the surface; the skin is thin and surrounds a whitish, very juicy, and aromatic pulp, so fragrant that its odor can be detected several yards away. The flavor is rather acid, but very aromatic. The seeds vary from one to three or four, and are oval or somewhat irregular in shape, about half an inch in diameter. The proportion of seed to flesh is small for wild fruit. The season is said to be November and December; there are very few fruits left now. A very superior *doce* is said to be made from this fruit, and the shrub seems on the whole unusually promising for trial in the mildest parts of the United States."

For an illustration of the pera do campo, see Plate IX.

37393 and 37394.

From Los Angeles, Cal. From Aggeler & Musser Seed Co., through Dr. D. N. Shoemaker, of the Bureau of Plant Industry. Received March 4, 1914.

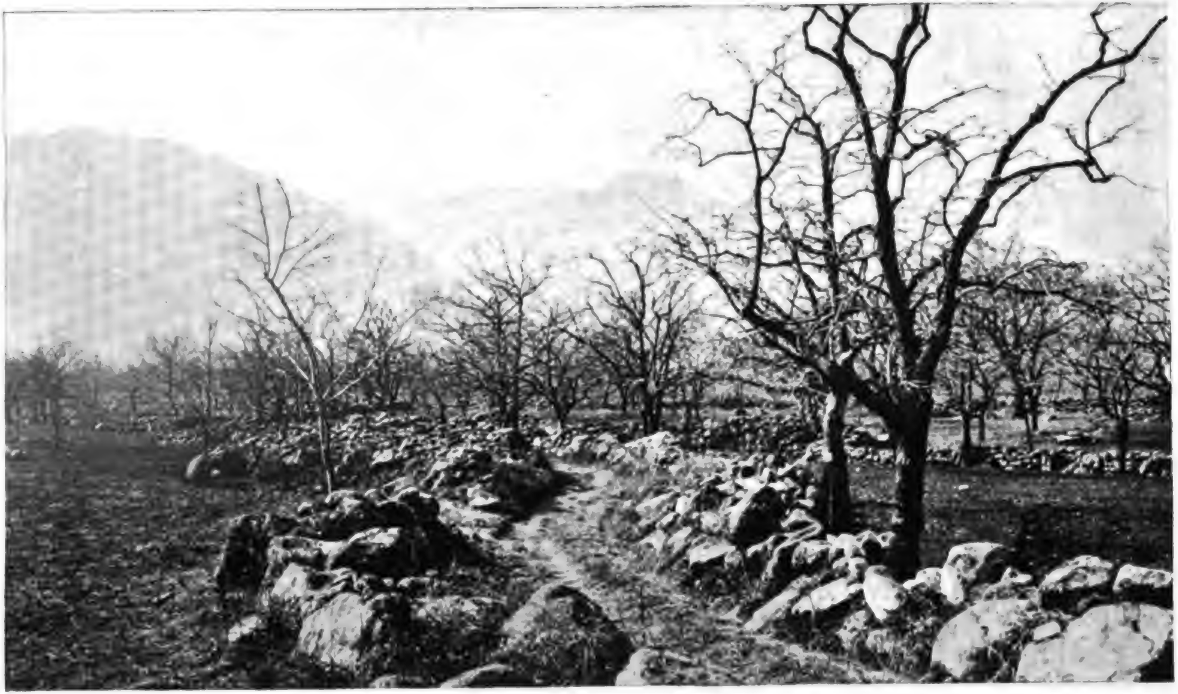
PLATE IX.



FRUITS OF THE PERA DO CAMPO OF BRAZIL (EUGENIA KLOTZSCHIANA), S. P. I. NO. 37392.

A wild bush, not over 5 feet high, bearing on second-year shoots not 2 feet from the ground several large russet-brown fruits which so scent the air that their presence can be detected many yards away. The melting acid pulp is aromatic and agreeable, and more or less purgative. The bush will probably stand light frosts. (Photographed (P15465FS) by Dorsett and Popenoe, Sitio, Minas Geraes, Brazil, January 20, 1914. Natural size.)

PLATE X.



AN ORCHARD OF CHINESE PERSIMMONS (DIOSPYROS KAKI).

The trees are all grafted or patch-budded on *Diospyros lotus*, which seems to thrive particularly well in such situations as this, at the foot of the spurs of the Tsin Mountains at Nantotchu, south of Sianfu, Shensi, China. See S. P. I. Nos. 37465 to 37473 and 37525 to 37540. (Photographed (P13059FS) by Frank N. Meyer, January 22, 1914.)

37393 and 37394—Continued.

37393. Colocasia esculenta (L.) Schott. **Taro.**

"(No 143 in their Chinese catalog of 1913.) *Banlung* taro. This taro or dasheen is of the type which produces comparatively few tubers. The corm is elongated and full of tender purple fibers. The variety is apparently identical with one obtained from several different sources, under different names. The quality is excellent, though the corms and tubers are acrid when raw." (*R. A. Young.*)

Corms.

37394. Amorphophallus sp.

"(No. 126 in their Chinese catalog of 1913.) *Claw spud.* One of the varieties grown by Chinese gardeners in southern California." (*R. A. Young.*)

Tubers.

37395 to 37404.

From Kongju, Chosen (Korea). Presented by Rev. Wilbur C. Swearer, Methodist Episcopal Church. Received February 26, 1914.

Quoted notes by Mr. Swearer.

37395. Phaseolus angularis (Willd.) W. F. Wight. **Adzuki bean.**

"No. 1. *Cherry* pea. I should say not properly a pea but a bean. Red, white eyed; small variety. Sow in April in soil about an inch deep, in little hills about 6 or 7 inches apart, two or three beans in a hill, weed and hoe three times during the season. The plants grow 1½ feet high without any support and are harvested in the early part of October after the leaves are dried and fallen off, or have been gathered before frost to feed to cattle. These beans and all others I am sending are much smaller than usual, owing to the fact that last summer there was very little rain."

37396 to 37404. Soja max (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

37396. "No. 2. *Date* bean. Round brown bean. Sown during the first part of April and reaped at the end of August or the first part of September. Cultivated about the same as the *cherry pea* [S. P. I. No. 37395], only in hills about a foot apart. None of these beans do well if planted too close together. This bean fertilizes the ground well; grows to a height of 2 feet. Pods are short and rough and contain 3 or 4 beans each. None of the soy beans are pole beans. This bean is much smaller than usual, owing to the fact that last summer there was very little rain."

37397. "No. 3. *White Chestnut* bean. Round yellowish white bean. A favorite with the Koreans. Cultivated the same as the *Date* bean [S. P. I. No. 37396]. Used as food for animals and people. Appearance of vines similar to the *Date* bean."

37398. "No. 4. *Big Green* bean. Round, flat, yellowish green. Sown in June and harvested in October, they grow 2 feet high. Cultivation similar to that of the *Date* bean [S. P. I. No. 37396]; pods also similar."

37395 to 37404—Contd. (Quoted notes by Rev. W. C. Swearer.)

37399. "No. 5. *Black-Eyed* bean. Small, yellowish, green bean, with black eye. Can be sown in drills; beans 2 or 3 inches apart. The Koreans take these beans after they are dried and place them in water in the house and eat them after they have sprouted, sprout and all, as a vegetable."

37400. "No. 6. *Rat's-Eye* bean. Small, round, black bean. Sown the last part of April, in hills several inches apart, they grow 1 foot high. There are four or five beans in a pod. The people sometimes eat them raw, claiming that they have medicinal properties. Usually they are sprouted and eaten as a vegetable."

37401. "No. 7. *Black Chestnut* bean. Round, flat, black bean. Sown either in April or in June, they are fed to animals or are eaten. This bean is much smaller than usual, owing to the fact that last summer there was very little rain."

37402. "No. 8. *Castor-Oil* bean. So named because the Koreans think it resembles the bean of that plant. Black, with the skin cracked and white streaks showing through. This is also a favorite with the Koreans, both for animal food and for man. This bean is much smaller than usual, owing to the fact that last summer there was very little rain."

37403. "No. 9. *Large Black-Green* bean. Round, dark-green and black. Sown in the middle of May. Cultivation similar to that of the *Date bean* [S. P. I. No. 37396]. This bean is much smaller than usual, on account of lack of rain the past summer."

37404. "No. 10. *Pheasant-Leg* bean. So named because the marking on it resembles those on the leg of a Mongolian pheasant. Small, round, brown bean. Sown the last part of May, not too close together. People eat them usually after they have sprouted them in the house."

37405. AVENA STERILIS L. **Oat.**

From Algiers, Algeria. Presented by Dr. L. Trabut, Government Botanic Service. Received March 5, 1914, as *A. sterilis segetalis* forma *nigra* Trabut.

For a full discussion of these interesting Algerian oats, see L. Trabut, The Origin of Cultivated Oats, Journal of Heredity, vol. 5, p. 74–85, 1914.

37406 to 37420. TRIFOLIUM PRATENSE L. **Red clover.**

Seed from individual selections grown at the Indiana Agricultural Experiment Station, La Fayette, Ind., in the clover nursery; seeded in the spring of 1912, the seed being gathered in the fall of 1913. Selections were made for hardiness, drought resistance, and desirable forage and seed habits.

37406. Riga, Russia, red clover grown from S. P. I. No. 18394, plant 5; total seed yield of plant, 1.75 grams.

37407. Riga, Russia, *Jeletz* red clover, grown from S. P. I. No. 18511, plant 12; total seed yield of plant, 1.5 grams.

37408. Old Swedish red clover, grown from S. P. I. No. 20468, plant 7; total seed yield of plant, 1 gram.

37406 to 37420—Continued.

37409. Wild red clover from Chile, grown from S. P. I. No. 25487, plant 1; total seed yield of plant, 2.5 grams.

37410. North Dakota red clover; total seed yield of plant, 0.04 gram.

37411. Indiana mammoth red clover; total seed yield of plant, 2 grams.

37412. Indiana mammoth red clover; total seed yield of plant, 0.2 gram.

37413. *Perm*, Russia, red clover, grown from S. P. I. No. 30910, plant 2; total seed yield of plant, 0.9 gram.

37414. Missouri red clover; total seed yield of plant, 0.08 gram.

37415. Missouri red clover; total seed yield of plant, 0.32 gram.

37416. North Dakota red clover; total seed yield of plant, 1.2 grams.

37417. North Dakota red clover; total seed yield of plant, 0.8 gram.

37418. Individual selections from unnumbered Indiana plant; total seed yield of plant, 2.1 grams.

37419. Individual selections from unnumbered Indiana plant; total seed yield of plant, 1.8 grams.

37420. Individual selections from unnumbered Indiana plant; total seed yield of plant, 1.55 grams.

37421 to 37444. TRIFÓLIUM PRATENSE L. **Red clover.**

Seed from individual selections grown at the Iowa Agricultural Experiment Station, Ames, Iowa, in the clover nursery; seeded in the spring of 1912; seed gathered in the fall of 1913. The selections were made for hardiness, drought resistance, and desirable forage and seed habits.

37421. Perennial Swiss red clover, grown from seed produced in North Dakota; total seed yield of plant, 6.9 grams.

37422. Orel, Russia, red clover, grown from S. P. I. No. 28036, plant 4; total seed yield of plant, 7.6 grams.

37423. New York red clover; total seed yield of plant, 8.4 grams.

37424. New York red clover; total seed yield of plant, 9.8 grams.

37425. Indiana mammoth red clover; total seed yield of plant, 14.3 grams.

37426. Indiana mammoth red clover; total seed yield of plant, 13.9 grams.

37427. Ohio red clover; total yield of plant, 3.6 grams.

37428. Ohio red clover; total seed yield of plant, 6.4 grams.

37429. Missouri red clover; total seed yield of plant, 9.4 grams.

37430. Siberian drought-resistant red clover, grown from S. P. I. No. 32222, plant 1; total seed yield of plant, 2.1 grams.

37431. Siberian drought-resistant red clover, grown from S. P. I. No. 32222, plant 14; total seed yield of plant, 6.9 grams.

37432. Individual selection; total seed yield of plant, 0.55 gram.

37433. Individual selection of red clover; total seed yield of plant, 8 grams.

37434. Individual selections of red clover, grown from Iowa No. 1; total seed yield of plant 6.1 grams.

37435. Individual selection of red clover, grown from Iowa No. 2; total seed yield of plant, 7.7 grams.

37421 to 37444—Continued.

37436. Individual selection of red clover, grown from Iowa No. 3; total seed yield of plant, 4.8 grams.

37437. Individual selection of red clover, grown from Iowa No. 4; total seed yield of plant, 6.1 grams.

37438. Individual selection of red clover, grown from Iowa No. 5; total seed yield of plant, 3.5 grams.

37439. Individual selection of red clover, grown from Iowa No. 6; total seed yield of plant, 3.9 grams.

37440. Individual selection of red clover, grown from Iowa No. 7; total seed yield of plant, 5.5 grams.

37441. Individual selection of red clover, grown from Iowa No. 8; total seed yield of plant, 4.2 grams.

37442. Individual selection of red clover, grown from Iowa No. 9; total seed yield of plant, 8.7 grams.

37443. Individual selection of red clover, grown from Iowa No. 10; total seed yield of plant, 3.4 grams.

37444. Individual selection of red clover, grown from Iowa No. 11; total seed yield of plant, 7.4 grams.

37445 to 37460. TRIFOLIUM PRATENSE L. **Red clover.**

Seed from individual selections grown at the North Dakota Agricultural Experiment Station, Agricultural College, Fargo, N. Dak., in the clover nursery; seeded in the spring of 1912, the seed being gathered in the fall of 1913. The selections were made for hardiness, drought resistance, and desirable forage and seed habits.

37445. Chile red clover, grown from S. P. I. No. 13515, plant 7; total seed yield of plant, 13 grams.

37446. North Dakota red clover; total seed yield of plant, 12 grams.

37447. North Dakota grown *Sutton's perennial* red clover from England; total seed yield of plant, 6.1 grams.

37448. North Dakota grown from South Dakota red clover; total seed yield of plant, 9 grams.

37449. North Dakota grown perennial Swiss red clover; total seed yield of plant, 6 grams.

37450. North Dakota grown *Orel* red clover; total seed yield of plant, 8 grams.

37451. *Toten,* Norway, red clover, grown from S. P. I. No. 27601, plant 9; total seed yield of plant, 2 grams.

37452. *Hvinden's,* Norway red clover, grown from S. P. I. No. 27602, plant 4; total seed yield of plant, 4 grams.

37453. South Dakota grown *Orel* red clover, grown from S. P. I. No. 27465, plant 6; total seed yield of plant, 14 grams.

37454. *Orel,* Russia, red clover, grown from S. P. I. No. 28036, plant 5; total seed yield of plant, 7 grams.

37455. New York red clover; total seed yield of plant, 11 grams.

37456. Indiana mammoth red clover; total seed yield of plant, 50 grams.

37457. Ohio red clover; total seed yield of plant, 25 grams.

37458. Ohio red clover; total seed yield of plant, 16 grams.

37445 to 37460—Continued.

37459. Missouri red clover; total seed yield of plant, 7.1 grams.

37460. Delaware red clover; total seed yield of plant, 27 grams.

37461. CITRUS SINENSIS (L.) Osbeck. **Jaffa orange.**

Seeds from selected fruits of the Jaffa orange. Purchased in London, England. Received March, 1914.

37462. LYCHNIS CORONATA Thunberg. **Wild pink.**

From Shanghai, China. Presented by Rev. J. M. W. Farnham.

37463 and 37464. PRUNUS CERASIFERA DIVARICATA (Ledeb.) Schneider.

From Jamaica Plain, Mass. Presented by the Arnold Arboretum. Received March 4, 1914.

"Seed from Botanic Gardens, Tiflis, February, 1914."

"A deciduous tree with the same habit and general aspect as *P. cerasifera;* neither does it appear to differ in the flowers or foliage. The fruit, however, is smaller (about three-fourths of an inch across), yellow, and not indented at the junction with the stalk. Probably this tree and *P. cerasifera* are only varieties of one species. They flower at the same time and are not distinguishable then. There is an old specimen near the cactus house at Kew which is probably one of the largest in the country. It is 25 feet high, 27 feet through, and its trunk is 3 feet 8 inches in girth. Quite possibly trees may be growing in various gardens as *P. cerasifera.* The trees at Kew have rarely borne fruits, but these are quite distinct from cherry plums (*P. cerasifera*). The species is said to be a native of the Caucasus, Persia, Macedonia, etc., and to have been introduced in 1822." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 235,* under *P. divaricata.*)

37465 to 37490.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received March 6, 1914.

Cuttings of the following; quoted notes by Mr. Meyer.

37465 to 37473. DIOSPYROS KAKI L. f. **Persimmon.**

37465. "(No. 1047. Near Lingpao, Honan, China, December 23, 1913.) A local variety of persimmon, being of small size, somewhat angular in shape, of orange-red color; meat firm; can be dried for winter uses. Chinese name *Ssŭ fang shih tzŭ,* meaning 'square persimmon.'"

37466. "(No. 1048. Near Lingpao, Honan, China, December 23, 1913.) A variety of persimmon said to be of large size, of flat shape, but not having a circular incision; color orange-red; meat soft and juicy; not a keeper; seedless. Chinese name *Ta hung pao shih tzŭ,* meaning 'large red persimmon.'"

37467. "(No. 1049. Near Lingpao, Honan, China, December 23, 1913.) A variety of persimmon said to be of very large size; fruits round and slightly tapering toward the apex; meat juicy and sweet; seedless. Chinese name *Ou hsin shih tzŭ,* meaning 'quince-heart persimmon.'"

37465 to 37490—Continued. (Quoted notes by Mr. F. N. Meyer.)

37468. "(No. 1050. Near Lingpao, Honan, China, December 23, 1913.) A variety of persimmon, said to be small, oblong in form, of reddish color, seedless; can be kept for a long time. Chinese name *Chu kuan shih tzŭ*, meaning 'bamboo-cup persimmon.'"

37469. "(No. 1051. Near Lingpao, Honan, December 23, 1913.) A variety of persimmon small to medium in size, round and flattened in shape; bears two furrows on top, which cross each other; color orange-red, of sweet taste, seedless; can be dried. Chinese name *Kuo kai shih tzŭ*, meaning 'pan-covered persimmon.'"

37470. "(No. 1052. Near Lingpao, Honan, December 23, 1913.) A variety of persimmon said be of round-oblong shape, of medium size; meat juicy, color orange red, seedless. Chinese name *Shui ching shih tzŭ*, meaning 'water-well persimmon.'"

37471. "(No. 1053. Near Lingpao, Honan, December 23, 1913.) A variety of persimmon of round-oblong shape, medium in size, color orange reddish, seedless; meat sweet and firm; can be dried. Chinese name *Lien hsin shih tzŭ*, meaning 'lotus-heart persimmon.'"

37472. "(No. 1054. Near Lingpao, Honan, December 23, 1913.) A variety of persimmon of round, flat shape, of medium size, color reddish, seedless; meat not very juicy; can be dried for winter uses. Chinese name *Ching mien shih tzŭ*, meaning 'mirror-face persimmon.'"

37473. "(No. 1055. Near Lingpao, Honan, December 23, 1913.) A variety of persimmon said to bear small fruits, color red, shape round oblong. The tree is a seedling and of tall, vigorous growth; it is said to bear but sparingly. May possibly have an abundance of staminate flowers and be of value as a pollen bearer. Chinese name *Huo ching shih tzŭ*, meaning 'fiery spectacle persimmon.'"

37474. PRUNUS ARMENIACA L. Apricot.

"(No. 1056. Near Lingpao, Honan, December 23, 1913.) An apricot said to bear large fruits, which are red cheeked on the side facing the sun, while being of whitish color on the shaded side. The tree grows to a large size. Chinese name *Ta hsing*, meaning 'big apricot.'"

37475 and 37476. ZIZIPHUS JUJUBA Miller. Jujube.
(*Ziziphus sativa* Gaertn.)

37475. "(No. 1057. Near Lingpao, Honan, December 23, 1913.) A variety of jujube said to bear large fruits of dark brown-red color. Chinese name *Ta tsao*, meaning 'big jujube.'"

37476. "(No. 1058. Lingpao, Honan, December 24, 1913.) A variety of jujube bearing very large fruits of dark brown-red color; the meat is quite sweet, but of a loose structure. These jujubes often are as big as small hens' eggs and are locally much used baked in bread. The trees are grown in large groves, and the total acreage of them around Lingpao must run well into the hundreds. Chinese name *Ta hung tsao*, meaning 'large red jujube.'"

37477. FORSYTHIA SUSPENSA (Thunb.) Vahl.

"(No. 1059. Tahuashan, Shensi, China, December 29, 1913.) A variety of golden bell, collected in dry, rocky places at an altitude higher than 5,000 feet. Local name *Lien ch'iao*. Of value especially for the drier sections of the United States."

37465 to 37490—Continued. (Quoted notes by Mr. F. N. Meyer.)

37478. ABELIA TRIFLORA R. Brown (?).

"(No. 1060. Tahuashan, Shensi, December 29, 1913.) A shrub, growing from 4 to 10 feet in height, mostly found on shady places; the old wood becomes curiously grooved, bearing six longitudinal furrows. Of value as an under shrub in large parks and grounds. Local name *Liu t'ung mu*. Collected at an altitude higher than 5,000 feet."

37479. EUONYMUS ALATUS (Thunb.) Rupr.

"(No. 1061. Tahuashan, Shensi, December 29, 1913.) A cardinal's-cap, found in stony places, usually in semishady situations. The young shoots are ornamented with four large corky wings. Collected at an altitude higher than 5,000 feet."

37480. KOLKWITZIA AMABILIS Graebner.

"(No. 1062. Tahuashan, Shensi, December 29, 1913.) A shrub, growing from 4 to 6 feet in height, found in rocky places. Has the look of a Spiraea, but the small fruits are spiny. Collected at an altitude higher than 5,000 feet."

37481. RUBUS sp.

"(No. 1063. Tahuashan, Shensi, December 29, 1913.) An erect-growing Rubus, having the looks of a vigorous raspberry. Collected at an altitude higher than 5,000 feet."

37482. POPULUS sp. **Poplar.**

"(No. 1064. Sianfu, Shensi, January 4, 1914.) A variety of poplar of fastigiate growth with a whitish bark and having apparently large leaves. Of special value as a quick-growing tree for windbreaks. Seems to withstand alkali to a considerable degree, but apparently prefers a moist soil. Local name *Pai yang shu*."

37483. TAMARIX sp. **Tamarisk.**

"(No. 1065. Sianfu, Shensi, January 6, 1914.) A tamarisk of large growth, able to withstand drought and alkali to a great degree. Of value especially for those semiarid sections of the United States where the winters are not too severe. Chinese name *Shan ch'un liu*, meaning 'mountain spring willow.'"

37484. ZIZIPHUS JUJUBA Miller. **Jujube.**
(*Ziziphus sativa* Gaertn.)

"(No. 1066. Sianfu, Shensi, January 6, 1914.) A variety of jujube of very gnarled and zigzag growth. The fruits are said to be round, medium size, shining brown-red and of sweet taste. Chinese name *So tsao*, meaning 'tasteful jujube.' Obtained from Mr. J. A. Ross, postmaster at Sianfu."

37485. MAGNOLIA DENUDATA Desr. **Magnolia.**
(*Magnolia yulan* Desf.)

"(No. 1067. Sianfu, Shensi, January 6, 1914.) A magnolia said to bear very large white flowers; this variety grows to large size and is grafted on a wild stock. Chinese name *Pai yü lan*."

37486. MALUS sp. **Crab apple.**

"(No. 1068. Sianfu, Shensi, January 6, 1914.) A variety of ornamental crab apple, growing to be a large tree. Flowers said to be single, of reddish pink color, and individually of large size. Chinese name *Hai t'ang*, meaning 'sea pear.'"

37465 to 37490—Continued. (Quoted notes by Mr. F. N. Meyer.)

37487 and 37488. MERATIA PRAECOX (L.) Rehd. and Wilson.
(*Chimonanthus fragrans* Lindl.) **Winter-sweet.**

37487. "(No. 1069. Sianfu, Shensi, January 8, 1914.) A variety of Chinese allspice, bearing large dark-yellow, waxy flowers of a remarkably strong sweet scent. Much used for forcing as dwarfed pot plants. Of value as a winter flowering shrub for the mild-wintered sections of the United States. Chinese name *Su hsin la mei*, meaning 'pure-heart allspice." (See also S. P. I. Nos. 37522 to 37524.)

37488. "(No. 1070. Sianfu, Shensi, January 8, 1914.) A variety of Chinese allspice, bearing large pale, waxy yellow flowers, less strongly scented than the preceding, No. 1069 [S. P. I. 37487], but used for similar purposes. Chinese name *Pai yü wan la mei*, meaning 'white jade cup allspice.' Could be very well utilized by American florists as a finely perfumed forcing flower for the winter holidays for the milder sections of the United States." (See also S. P. I. Nos. 37522 to 37524.)

37489. ZIZIPHUS JUJUBA Miller. **Jujube.**
(*Ziziphus sativa* Gaertn.)

"(No. 1071. Sianfu, Shensi, January 8, 1914.) *Tortuosissima*. A variety of jujube, grown as an ornamental tree of medium dimensions in Chinese gardens, having most remarkably gnarled, twisted, and crooked branches. The fruits are said to be of good flavor, though not large. Chinese name *Lung chao tz'ŭ shu*, meaning 'dragon's-claw thorn tree.' Obtained from Mrs. A. G. Shorrock, English Baptist Mission at Sianfu."

37490. ROSA sp. **Rose.**

"(No. 1072. Sianfu, Shensi, January 8, 1914.) A local Chinese variety of rose, bearing very large flowers of an old-fashioned real rose color and possessing a faint fragrance. Belongs probably to the group of perpetual bloomers and retains its large and handsome foliage until very late in winter. Chinese name *Yüeh chi mu tan*, meaning 'monthly peony rose.' Obtained from Mrs. A. G. Shorrock, English Baptist Mission at Sianfu. Of special value for the drier sections of the United States where the summers are hot and the winters mild."

37491 and 37492.

From Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received March 10, 1914.

Quoted notes by Messrs. Dorsett, Shamel, and Popenoe.

37491. CAMPOMANESIA GUAVIROBA (DC.) Benth. and Hook. f. **Guabiroba.**

"(No. 92a. Sitio, Minas Geraes. January 28, 1914.) A wild myrtaceous fruit called *guabiroba* by the natives. The plant is 10 to 12 feet high, upright in growth. The fruits are oblate in form, an inch in diameter, orange yellow when ripe, containing one or two perfect seeds and several abortive ones, surrounded by white, melting pulp, of rather acid and guavalike flavor. For trial in California and Florida."

37492. EUGENIA KLOTZSCHIANA Berg. **Pera do campo.**

"(No. 97a. Sitio, Minas Geraes, January 28, 1914.) *Pera do campo*, or *cabacinha do campo*. Seeds obtained from plants on the campo, 5 kilometers below town." See S. P. I. No. 37392 for description.

37493 and 37494.

From Sao Paulo, Brazil. Presented by Mr. George C. Gemmell. Received March 3, 1914.

37493. BRADBURYA sp.

"A vine found running over the ground bearing lavender-colored flowers with a violet center. Flowers the shape of a sweet pea, about 2 to 3 inches across, flowering in July. Has a small pod similar to a bean. Collected at Agua Kente, about the center of the State of Goyaz." (*Gemmell.*)

37494. (Undetermined.)

"An ornamental vine found growing on a tree to a height of 20 feet, bearing large, scarlet flowers the shape of a sweet pea, about 5 inches across. Flowering in July. Pod about 5 inches long, 1 inch wide, containing from three to five seeds. One flower on a stem. Collected at Agua Kente, about the center of the State of Goyaz." (*Gemmell.*)

37495 to 37499. BERBERIS spp. **Barberry.**

From Dublin, Ireland. Presented by the director, Royal Botanic Gardens, Glasnevin. Received March 7, 1914.

37495. BERBERIS GAGNEPAINI Schneider.

See S. P. I. No. 32701 for previous introduction.

"An evergreen shrub with clustered stems, free from down in all its parts, at present 2 to 3 feet high (perhaps ultimately 4 or 5 feet), the branches set with 3-parted spines one-half to three-fourths inch long. Leaves of firm texture, 1½ to 3 inches long, one-fourth to one-third inch wide, linear lanceolate, tapering to a fine point, dark dull green, the margins undulated and set with slender forward-pointing teeth. Flowers in clusters of about six (sometimes 10 or 12) at each tuft of leaves, each flower on a slender stalk one-half to three-fourths inch long, bright yellow, one-half inch across. Berry black, covered with blue bloom, oval, one-third to five-eighths inch long, one-fourth inch wide.

"Native of Szechwan, China, introduced for Messrs. Veitch by Wilson about 1904. This barberry is one of the most promising of Wilson's introductions from China, being evergreen, of compact, neat habit, and flowering abundantly. Allied to *Berberis hookeri*, it is of more graceful habit. It is quite hardy at Kew, and free growing. It flowers in late May." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 241.*)

37496. BERBERIS PRATTII Schneider.

A barberry, allied to *Berberis polyantha*, with salmon-red, globose berries, oblong obovate, reticulate, thinner leaves, entire or with few spiny teeth, and narrow panicles, up to 6 inches long. Differs from *polyantha*, which has much thicker leaves with a very fine and narrow reticulation, broader, looser inflorescences, shorter bracts, and rather long-styled fruits, swollen and elliptical when dry. (Adapted from *Schneider, in Plantae Wilsonianae*, and *Rehder, in Bailey's Standard Cyclopedia of Horticulture.*)

37495 to 37499—Continued.

37497. Berberis subcaulialata Schneider.

"Very similar in general aspect to *B. stapfiana*, but distinguished by its distinctly angled branchlets, larger leaves, and translucent yellowish green fruits, suffused with red. Native of Tibet and western China." (*New Garden Plants of 1913. Kew Bulletin.*)

37498. Berberis hookeri Lemaire.

"This Berberis from the mountains of tropical Asia is a hardy, evergreen bush, which attains a height of 10 feet. It is an evergreen of most beautiful aspect, with brown branches, a very dark green, dense foliage, and long, slender, 3-parted spines. The leaves grow in clusters and are about 3 or 4 inches long, with sharp, prickly points and numerous fine serratures, ending in a straight point on each side. On the upper side they are rich, bright green, turning to a claret color in the autumn, and are remarkably netted. On the under side they are pale green and shining. The flowers are large and deep yellow in color." (*Paxton, Flower Garden, vol. 1, p. 12 and 79.*)

37499. Berberis wilsonae Hemsley.

See S. P. I. No. 29959 for previous introduction.

"An elegant deciduous (sometimes partly evergreen) shrub, 2 to 4 feet high, of spreading habit, and usually more in diameter. Branches comparatively thin, reddish brown, slightly downy, armed with slender, 3-parted spines, one-half to three-fourths of an inch long, and red when young. Leaves as a rule less than 1 inch long, mostly oblanceolate, and either rounded or sharply pointed at the apex; otherwise entire, or occasionally three lobed at the apex; smooth, conspicuously veined, gray-green above, somewhat glaucous beneath. Flowers small, pale yellow, borne 2 to 6 together in fascicles or short racemes. Berries roundish, coral or salmon red, somewhat translucent, borne very abundantly.

"Native of western China; discovered and introduced about 1904 by Mr. E. H. Wilson, after whose wife it is named. This is one of the most charming new introductions from western China, of neat yet elegant habit, and most noteworthy for its prettily colored, abundant berries. The leaves are said by Wilson to assume brilliant tints in autumn." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 252-253.*)

37500. Pyrus calleryana Decaisne. **Pear.**

From Hongkong, China. Presented by Mr. W. J. Tutcher, superintendent, Botanical and Forestry Department. Received February 28, 1914.

"*Pyrus calleryana* is a widely distributed species [in China] and seems not uncommon on the mountains at an altitude of 1,000 to 1,500 meters. It is easily recognizable by its comparatively small crenate leaves, like the inflorescence glabrous or nearly glabrous, and by its small flowers with 2, rarely 3, styles. When unfolding, most specimens show a loose and thin tomentum on the under side of the leaves, which usually soon disappears. . . . The species was introduced by E. H. Wilson to the Arnold Arboretum in 1908 and the young plants seem to be hardy here." (*Alfred Rehder, Proceedings of the American Academy, vol. 50, no. 10, p. 237, 1915.*)

Distribution.—The Provinces of Shantung, Kwangtung, and Kiangsu, in China.

37501. LANSIUM DOMESTICUM Jack. **Duku.**

From Buitenzorg, Java. Presented by the director of the Botanical Garden, Received March 6, 1914.

See S. P. I. No. 24431 for previous introduction and description.

37502. MEIBOMIA GYROIDES (DC.) Kuntze.
(*Desmodium gyroides* DC.)

From Buitenzorg, Java. Presented by Dr. C. J. J. Van Hall, Department of Agriculture. Received March 6, 1914.

"This is the most valuable of the many species of Desmodium known to us at present. It grows in bushy form and produces many leaves; it can also be cut to any height, and lives a long time. *Desmodium gyroides* is to be found in the neighborhood of Plaboeanratoe, up to 2,500 feet. It produces a quantity of seed which is very small, and it is therefore advisable to sow it in lines. The seed will germinate in about a fortnight. One drawback to the use of this plant, however, is that often many of the young plants die shortly after they appear above the ground for some reason which has not yet been satisfactorily explained.

"This Desmodium is considered to be a very good manurial plant for coffee and hevea plantations, since it produces numerous leaves which form a fairly thick humus layer. It does not suffer from any disease; the only fault to be found with it is that some of the plants, after being pruned a couple of times, may be attacked by *Corticium salmonicolor*. If the injured plants be removed immediately, however, there is no fear of any harm being done to the cultivated plants." (*Kew Bulletin, 1914, p. 24.*)

37503. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Northern Nigeria, West Africa. Presented by Mr. J. Shelley, London, England. Received March 7, 1914.

"*Guinea corn* or *dower*. This corn forms the staple article of diet of millions of African negroes. It is very prolific and seems to thrive best in the Tropics, though it is possible that it may be acclimated to grow in the Temperate Zone. The stalks sometimes attain a height of 20 feet. These stalks can be used for forage and basket making." (*Shelley.*)

37504 to 37507.

From Pago Pago, American Samoa. Presented by Commander C. D. Stearns, Governor of American Samoa. Received March 3, 1914.

Quoted notes by Commander Stearns.

37504. (Undetermined.)

"*Magugu*. A small size tree; grows very thick."

37505. BIXA ORELLANA L. **Arnotto.**

"*Loa*. Useful for red dye from the seeds."

37506. AGLAIA EDULIS (Roxb.) A. Gray.

"*Lagaali*."

37507. GYNOPOGON BRACTEOLOSA (Rich.) Schumann.
(*Alyxia bracteolosa* Rich.)

"*Gau*. A vine suitable for hedge."

37508. CAPRIOLA DACTYLON (L.) Kuntze. **Giant Bermuda grass.**
(*Cynodon dactylon* Pers.)

Grown at Arlington, Va., and Biloxi, Miss.

"*Giant Bermuda* grass. A very large, vigorous form of Bermuda grass, which at Biloxi, Miss., grows to a height of 20 inches and in a single season produces superficial stolons 15 feet long. The original of this variety has been lost. It was sent to Arlington from the greenhouse under S. P. I. No. 24434, but its association with that number was probably entirely accidental." (*C. V. Piper.*)

37509 to 37516. COLOCASIA ESCULENTA (L.) Schott. **Dasheen.**

Grown at the Plant Introduction Field Station, Brooksville, Fla., season of 1913.

Quoted notes by R. A. Young.

37509 to 37512.

"The propagating material of these strains consists of tubers from a single plant of S. P. I. No. 15395."

37509. "A selected Trinidad dasheen in which the flesh of the corm when cooked is mealy, of good flavor, and yellowish in color, not becoming darker on exposure to the air."

37510. "A selected strain of the Trinidad dasheen in which the flesh of the corm when cooked is mealy, of good flavor, and creamy white in color."

37511. "A selected strain of the Trinidad dasheen in which the flesh of the corm when cooked is mealy, slightly nutty, and almost white in color."

37512. "A selected strain of the Trinidad dasheen in which the flesh of the corm when cooked is mealy, slightly nutty, and grayish white in color."

37513. "A selected strain of the Trinidad dasheen in which the flesh of the corm when cooked is fairly mealy, of good flavor, and grayish white to light violet in color. (Propagating material of this strain was selected from S. P. I. Nos. 15382, 15395, and 19224.)"

37514. "A selected strain of dasheen in which the flesh of the corm when cooked is mealy, slightly nutty, and violet-colored. (Propagating material for this strain was taken from several selected hills of S. P. I. No. 19224)."

37515 and 37516.

"Propagating material for these strains was selected from several hills of S. P. I. No. 15382."

37515. "A selected strain of the Trinidad dasheen in which the flesh of the corm when cooked is mealy, of good flavor, and cream white in color."

37516. "A selected strain of the Trinidad dasheen in which the flesh of the corm when cooked is mealy, slightly nutty, and grayish white in color."

37517 to 37521. Oryza sativa L. **Rice.**

From Vercelli, Italy. Presented by the director, Rice Experiment Station. Received March 4, 1914.

37517. "Common native variety. Source, Santhia (Novara). Very fertile soils, highest production, matures first decade in October."

37518. "Var. *sekiyama*. Source, Vercelli. In most fertile soils, highest production, matures at the end of September."

37519. "Variety native early No. 2. Source, Santhia (Novara). Fertile soils, medium production, matures at the end of September."

37520. "Native early No. 3. Source, Santhia (Novara). Soils of medium fertility, production medium, matures second decade in September."

37521. "Variety *Sancino*. Source, Vercelli. Fertile soils, good production, matures second decade in September."

37522 to 37548.

From Sianfu, Shensi, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received March 14, 1914.

Cuttings of the following; quoted notes by Mr. Meyer.

37522 to 37524. Meratia praecox (L.) Rehd. and Wilson. (*Chimonanthus fragrans* Lindl.) **Winter-sweet.**

37522. "(No. 1076. January 13, 1914.) A variety of the Chinese allspice, having large flowers, the outer petals of which are broad and dark waxy yellow, while the inner ones are brownish red striped, very fragrant. Chinese name *Hu t'i la mei*, meaning 'fox-paw allspice.' Of value as a flowering shrub for the mild-wintered sections of the United States." See also S. P. I. Nos. 37487 and 37488.

37523. "(No. 1077. January 13, 1914.) A variety of the Chinese allspice, being a variety of the preceding number [S. P. I. 37522], flowers smaller, petals less broad and more pointed, inner petals darker colored, possesses a very agreeable, hyacinthlike fragrance. Chinese name *Chien pan hu t'i la mei*, meaning 'narrow-petaled fox-paw allspice.' Of value as a flowering shrub for the mild-wintered sections of the United States."

37524. "(No. 1078. January 13, 1914.) A variety of Chinese allspice, having small flowers of rather dark yellow color, strongly scented; apparently the wild type. Chinese name *Kou ying la mei*, meaning 'dog-fly allspice.' Of value as a garden shrub in mild-wintered climates."

37525 to 37539. Diospyros kaki L. f. **Persimmon.**

37525. "(No. 1081. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be of medium size, round shape, orange-yellow color, and seedless; can be either dried or kept fresh for a long time. Chinese name *Fĕn niu hsin shih tzŭ*, meaning 'rosy oxheart persimmon.'"

37526. "(No. 1082. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be much like the preceding [No. 37525], but somewhat smaller and of brighter color. Chinese name *Fĕn shih tzŭ*, meaning 'rosy persimmon.'"

37522 to 37548—Continued. (Quoted notes by Mr. F. N. Meyer.)

37527. "(No. 1083. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be of medium size, somewhat square at base, but rounded off at the top, of yellowish color, seedless, not a good keeper. Chinese name *I shêng shih tzŭ*, meaning 'early persimmon.'"

37528. "(No. 1084. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be of medium size, square at base, but tapering toward the top; of yellowish color, seedless; can be either dried or kept fresh for a considerable time. The trees generally are heavy bearers. Chinese name *Ch'in shih tzŭ*, meaning 'Chin persimmon.'"

37529. "(No. 1085. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be of small size, round shape with rounded-off top, of reddish color and seedless; can be either dried or kept fresh for a long time. Chinese name *Mien tan shih tzŭ*, meaning 'ball-of-flour persimmon.'"

37530. "(No. 1086. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be rather small, square at base but tapering toward top, of red color, and seedless; can be either dried or kept fresh for several months. Chinese name *Hung shih tzŭ*, meaning 'red persimmon.' The bark of an old tree of this variety is characteristically smooth and of an ashy white color."

37531. "(No. 1087. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be of elongated shape, square at base, of reddish color, seedless; can be either dried or kept fresh for a long time. Chinese name *Ch'iu chien ting shih tzŭ*, meaning 'autumn-ripening persimmon.'"

37532. "(No. 1088. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be of medium size, of angular shape, and yellowish color; calyx very large. The trees are of spreading growth and are prolific bearers. Chinese name *Kou pu ch'ih shih tzŭ*, meaning 'no-dog-can-eat-them-all persimmon.'"

37533. "(No. 1089. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be of small to medium size, round shape, yellow color, and seedless; can be either dried or kept fresh for a long time. When not picked, many of the fruits dry on the tree. Chinese name *Kua kan shih tzŭ*, meaning 'persistent persimmon.'"

37534. "(No. 1090. Village of Nantotchu, south of Sianfu. January 20, 1914.) A variety of Chinese persimmon, said to be of large size, of flat shape, with an incision running horizontally around, of orange-yellow color, and seedless. Chinese name *Chung t'ai shih tzŭ*, meaning 'double-stage persimmon.' This variety is apparently identical with *Tamopan*."

37535. "(No. 1091. Village of Nantotchu, south of Sianfu. January 20, 1914.) A Chinese variety of persimmon, said to be of large size, round-oblong shape, and yellowish color; contains but few seeds, and possesses a very agreeable sweet flavor. A superior

37522 to 37548—Continued. (Quoted notes by Mr. F. N. Meyer.)

quality of dried persimmon can be made from it. Chinese name *Niu hsin shih tzŭ*, meaning 'oxheart persimmon.'"

37536. "(No. 1092. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be medium to large in size, round-oblong in shape, with four vertically running furrows, of orange color, and seedless; can be dried. Chinese name *Chien ting shih tzŭ*, meaning 'pointed-top persimmon.'"

37537. "(No. 1093. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be large, of tapering form, but square at base, of red color, seedless; can be either dried or kept fresh for a long time. Chinese name *Shao shih tzŭ*, meaning 'fire-red persimmon.'"

37538. "(No. 1094. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be of medium size, of somewhat square, flattened shape, yellow, seedless; can be dried. Chinese name *Man êrh shih tzŭ*, meaning 'meaty' or 'solid persimmon.'"

37539. "(No. 1095. Village of Nantotchu, south of Sianfu. January 20, 1914.) A Chinese variety of persimmon, said to be small, of round-oblong shape, color quite red, seedless; can be kept fresh almost throughout the winter. Chinese name *Huo kuan shih tzŭ*, meaning 'fire-pot persimmon.'"

37540. Diospyros lotus L.

"(No. 1096. Village of Nantotchu, south of Sianfu. January 20, 1914.) The original wild form of the North Asiatic persimmon, from which probably nearly all cultivated varieties of so-called oriental persimmons have been developed. The fruits are small, of globular shape and yellowish green color; taste sour and astringent; full of seeds. The tree occurs on gently sloping mountain sides and on the edges of loess ravines; it is able apparently to stand a great amount of drought. Of medium dimensions, inclined to be low branched, bark fairly smooth and scaly, of an ashy color. Locally it is sparingly used as a stock for cultivated varieties. Chinese name *Yeh shih tzŭ*, meaning 'wild persimmon.'"

For an illustration of a Chinese persimmon orchard, see Plate X.

37541. Euonymus radicans acutus Rehder.

"(No. 1097. Village of Nantotchu, south of Sianfu. January 20, 1914.) A variety of cardinal's-cap, the nonfruiting branches of which climb up against walls and tree trunks. Leaves of glossy green and bronze-red color, persistent throughout the winter. Thrives best in full sun. Chinese name *Tung ch'ing*, meaning 'winter green.' Of value as a wall cover plant for mild-wintered regions."

37542. Populus tomentosa Carr. Poplar.

"(No. 1098. Village of Nantotchu, south of Sianfu. January 20, 1914.) The white poplar of North China, growing to large size and to old age on congenial spots. Loves somewhat sheltered locations on loess lands or along rivulets on rich but well-drained soil. Of special value as an avenue tree for the milder parts of the semiarid belt in the United States. Chinese name *Ta pai yang shu*, meaning 'big white poplar tree.'"

37522 to 37548—Continued. (Quoted notes by Mr. F. N. Meyer.)

37543. Diospyros kaki L. f. **Persimmon.**

"(No. 1099. Village of Nantotchu, south of Sianfu. January 20, 1914.) A variety of Chinese persimmon, said to be square at base, with rounded-off top, has vertically running grooves, color orange-red, seedless; can be kept fresh for some time, but is not fit to be dried. Chinese name *Man t'ien hung shih tzŭ*, meaning 'fleshy sky-red persimmon.'"

37544. Syringa sp. **Lilac.**

"(No. 1100. From mountains near Nantotchu, south of Sianfu. January 21, 1914.) A lilac of small slender growth, found on a stony mountain slope at an elevation of about 3,000 feet; apparently rare."

37545. Lonicera sp. **Honeysuckle.**

"(No. 1101. From mountains near Nantotchu, south of Sianfu. January 21, 1914.) A bush honeysuckle of open growth, having hairy leaves and flowering apparently very early. Found on dry, shady places at altitudes between 2,000 and 4,000 feet."

37546. Euonymus radicans acutus Rehder.

"(No. 1102. Village of Yatzeko, south of Sianfu. January 22, 1914.) Collected from a specimen having a trunk as thick as a man's arm. These fruiting branches may perhaps supply very shapely bushes when rooted and kept free from climbing shoots. Of special value for the mild-wintered sections of the United States. See also remarks under No. 1097 [S. P. I. 37541]."

37547 and 37548. Castanea mollissima Blume. **Chestnut.**

37547. "(No. 1103. Village of Yatzeko, south of Sianfu. January 22, 1914.) A variety of Chinese chestnut, said to have large fruits; is locally being propagated by top grafting. Apparently very resistant to the bark fungus. This variety might be tested in experiments to see whether it retains its resistance to the disease after having been grafted on American stock."

37548. "(No. 2005a. January 14, 1914.) A remarkable large variety of Chinese chestnut, coming from a mountainous district one day's journey to the south of Sianfu. The trees are said to be low branched and not at all of tall growth. Chinese name *K'uei li tzŭ*, meaning 'superior' or 'first-class chestnut seeds.'"

37549 to 37553. Holcus sorghum L. **Sorghum.**

(*Sorghum vulgare* Pers.)

From German East Africa. Presented by Usumbwa Co., Nyembe Bulungwa, Tabora. Received March 5, 1914.

37549. *Kalundi*–1

37550. *Utembe.*

37551. *Holongo waza.*

37552. *Kalundi*–2.

37553. *M.*

37554. Pringlea antiscorbutica Brown. **Kerguelen cabbage.**

From Havre, France. Presented by Mr. René E. Bossière. Received February 27, 1914.

From Kerguelen Island.

"This species of Pringlea is exceedingly abundant over all of the Falkland Islands, ascending the hills up to 1,400 feet, but only attaining its usual large size close to the sea, where it is invariably the first plant to greet the voyager. Its rhizomata, often 3 or 4 feet long, lie along the ground; they are sometimes 2 inches in diameter, full of spongy and fibrous substances intermixed, of a half-woody texture, with the flavor of horse-radish, and bear at the extremity large heads of leaves, sometimes 18 inches across, so like those of the common cabbage that if growing in a garden with their namesake they would not excite any particular attention. The outer leaves are coarse, loosely placed, and spreading; the inner form a dense white heart that tastes like mustard and cress, but much coarser. The whole foliage abounds with essential oil of pale-yellow color, highly pungent, confined in vessels that run parallel with the veins of the leaf, and which are very conspicuous on making a transverse section of the head." (*Hooker, Flora Antarctica, p. 240.*)

37555 and 37556.

From Sianfu, Shensi, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received at the Plant Introduction Field Station, Chico, Cal., March 4, 1914.

Rooted cuttings; quoted notes by Mr. Meyer.

37555. PHYLLOSTACHYS PUBERULA NIGRA (Lodd.) Houzeau. **Bamboo.**
(*Phyllostachys nigra* Munro.)

"(No. 1073. January 10, 1914.) A bamboo having black canes, growing from 15 to 20 feet high. Of very pleasing appearance when planted against a wall and care is taken that the plantation does not become too dense. Chinese name *Mei chu chih.*"

37556. BAMBOS sp. **Bamboo.**

"(No. 1074. January 10, 1914.) A bamboo, growing only 1 to 3 feet high, having fairly broad leaves and but thin stems. It seems to like a situation where the soil does not become too dry. Of special value as a bank binder and a ground cover plant for the mild-wintered sections of the United States. Chinese name *Lo han chu chih.*"

37557. OPHIOPOGON JAPONICUS (L. f.) Ker-Gawler.

From Rome, Italy. Presented by Dr. Gustav Eisen. Received March 16, 1914.

"Seeds of a liliaceous plant, used extensively to form carpets or lawns under the trees or in the open; requires no cutting, as it never grows higher than 4 or 5 inches. If planted closely it makes a very fine lawn, which requires little watering and which does well in the shade. The berries resemble those of Convallaria and are of a splendid sky blue, looking like beads made of lapis luzuli." (*Eisen.*)

37558. CHAENOMELES LAGENARIA CATHAYENSIS (Hemsl.) Rehder. **Quince.**

(*Cydonia cathayensis* Hemsl.)

From Peking, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received March 13, 1914.

Seeds taken from a sample fruit sent in by Mr. Meyer, November 1, 1913.

37559. AMYGDALUS PEDUNCULATA Pallas.

(*Prunus pedunculata* Maxim.)

From Chita, Transbaikal, Siberia. Presented by Mr. M. M. Timogowitsch. Received March 14, 1914.

Distribution.—A shrub found in the region around Lake Baikal in southeastern Siberia and in northeastern Mongolia.

37560 to 37562. BERBERIS spp. **Barberry.**

From Madrid, Spain. Presented by the curator, Botanic Garden, Madrid. Received March 19, 1914.

37560. BERBERIS MACRACANTHA Schrader.

37561. × BERBERIS NEUBERTI Lemaire.

"This species of Berberis is a hybrid between *Berberis aquifolium* and *B. vulgaris.* The branches are grayish brown, without spines, and upright. The leaves are simple, oval or ovate, sometimes with one or two smaller leaflets. They are 1½ inches to 3 inches in length, spiny or setulose dentate, and dark grayish green above. The flowers are borne in racemes. This species of Berberis is hardy in the north, but the leaves are not persistent." (*Bailey, Cyclopedia of American Horticulture.*)

"The older leaves are alternate, solitary, evergreen, and in form, color, and substance like those of the common holly. In the axils of some of these are borne tufts of leaves resembling those of the common Berberis, not only in their tufted arrangement, but also in their form, texture, serration, and deciduous character. The leaves of the common Berberis, however, are all simple, while many of these are ternate, some palmately, others pinnately so (i. e., the three leaflets are either stalked or sessile). The hollylike leaves we take to be exaggerated representatives of the palmately divided spines that are commonly met with in the barberry. A similar exaggeration of development is manifested in the ternate leaves. We are indebted to Mr. Nicholson for the identification of this Berberis with that called in German nurseries *B. neuberti* ×, which originated in A. N. Baumann's nursery at Bollweiler, in Alsace, as an accidental cross between the purple-leaved variety of *B. vulgaris* and the common Mahonia (*B. aquifolium*). The explanation of the singular conformation of the plant, with some of the leaves evergreen, others deciduous, is thus furnished by its mixed parentage." (*Gardeners' Chronicle, June 26, 1886.*)

37562. BERBERIS sp.

37563. SOJA MAX (L.) Piper. **Soy bean.**

(*Glycine hispida* Maxim.)

From Songdo, Chosen (Korea). Presented by Rev. W. G. Cram, the Anglo-Korean School. Received March 19, 1914.

White Manchurian soy bean.

37564 and 37565. VIGNA spp.

From Paris, France. Procured from Vilmorin-Andrieux & Co. Received February 21, 1914.

37564. VIGNA CYLINDRICA (Stickman) Skeels. **Cowpea.**

Received as *Dolichos*, long Tonkin bean.

37565. VIGNA SESQUIPEDALIS (L.) Fruwirth. **Asparagus bean.**

"Received as extra long-podded *Dolichos*. This is a buff-seeded variety of the asparagus or yard-long bean." (*W. J. Morse.*)

37566. SOLANUM QUITOENSE Lam.

From Guayaquil, Ecuador. Presented by Mr. Frederic W. Goding, American consul general. Received March 23, 1914.

"*Naranjilla.* A native fruit of Ecuador. Seeds obtained from a small fruit resembling an orange, with a diameter of a trifle more than an inch, very sour, but used locally for salads and refreshing drinks. Also delicious ices are prepared with its juice. The tree grows to a height of 4 or 5 feet in a moderately warm climate, a few hundred feet above the sea level." (*Goding.*)

37567. CHRYSOPOGON ACICULATUS (Retz.) Trinius.

From Honolulu, Hawaii. Presented by Dr. E. V. Wilcox, Hawaii Agricultural Experiment Station. Received March 12, 1914.

Native *Pilipiliula.*

"This grass is almost exclusively used for lawns at Hongkong, where it is known as *lovilovi* grass. Although rather coarse, it is the most satisfactory grass yet found on the thin soil at Hongkong. When the grass is ready to go to seed, however, it is very objectionable on account of the sharp-pointed fruits, which stick to the clothing wherever they touch it. The grass is also abundant in the Philippines and in India. It makes excellent pasturage, but the objectionable features are such that it is doubtful whether it should be introduced in this country. The present supply of seed has been secured for the purpose of testing in Florida under conditions which will not permit of its spreading until opportunity has been given to determine whether its good qualities will outweigh its bad." (*C. V Piper.*)

Distribution.—Generally distributed throughout tropical Asia, the Polynesian islands, and in Australia.

37568 and 37569. SECALE CEREALE L. Rye.

From Chita, Transbaikal, Siberia. Presented by Mr. A. Savary, director, Central Experiment Station, Transbaikal. Received March 14, 1914.

"Spring rye from the neighborhood of the county seat, Verkhne Udinsk, harvested in the year 1913." (*Savary.*)

37570 to 37576.

From Vladivostok, Siberia. Presented by Mr. John F. Jewell, American consul. Received March 16, 1914.

Seeds grown in the Ussuri district along the Ussuri Railroad; quoted notes by Mr. Jewell.

37570 to 37574. SOJA MAX (L.) Piper. Soy bean.
(*Glycine hispida* Maxim.)

37570. "No. 1. Chinese bean, grown in the village of Chernigovka by P. J. Monostirniy."

37571. "No. 2. Chinese bean, grown in the village of Petrovka."

37572. "No. 3. Chinese bean, grown by St. Troitzky monastery at Shmakovka."

37573. "No. 4. Yellow bean, *Ko-yi.*"

37574. "No. 5. *Khei.*"

37570 to 37576—Continued. (Quoted notes by Mr. J. F. Jewell.)

37575. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. **Adzuki bean.**

"No. 6. No special name for these beans."

37576. PHASEOLUS AUREUS Roxb. **Mung bean.**

"No. 7. *Nogti.*"

37577. CARICA PAPAYA L. **Papaya.**

From Manila, Philippine Islands. Presented by Mr. William S. Lyon. Received March 11, 1914.

"One of these 'seedless' fruits has now perfected 26 and the other 35 seeds and at the same time we are still getting plenty of entirely vacant fruits. After all, seedlessness is no especial virtue in a papaya, even though the normal fruit found here bears always a double handful, several hundred at least, but has the undoubted value of decreasing the size of the placental cavity and greatly increasing the thickness of the flesh. Most of our seedless plants have had a rind of 30 to 32 millimeters in thickness as against an average of 12 to 15 millimeters of the unimproved kinds. These figures are by measurement and not by guess. If prolificacy be a trait worth cultivating, then this variety has it in a superlative degree. Only about 16 months from the seed, we are now eating the last of the third crop, aggregating (for the three) about 100 fruits, and a fourth crop is due to begin to ripen in about one month. The greater part of the first crop I have sold at the rate of $15 per hundred, although, as I indicated to you before, the greatly reduced size of the subsequent crops would depreciate their market value. Still another freak development I notice, that would make the fixation of the variety even by vegetative means a matter of doubt, is a sudden variation in form, the present crop showing a preponderance of oblong fruits, while a few are as round as a pomelo. This is a feature, however, that I surmise may lie much within the control of the cultivator. The immense size of the fruits and their position, one bearing down upon the other, has an undoubted tendency to elongate them. Careful thinning, I am of the opinion, would modify this to the extent of producing fruits more nearly round; that is a desideratum." (*Lyon.*)

37578 to 37600.

From Edinburgh, Scotland. Presented by the Royal Botanic Garden. Received February 25, 1914.

37578 to 37581. ASPARAGUS spp. **Asparagus.**

37578. ASPARAGUS GONOCLADUS Baker.

37579. ASPARAGUS GRACILIS Royle.

37580. ASPARAGUS PLUMOSUS Baker.

37581. ASPARAGUS SCANDENS Thunberg.

37582 and 37583. SORBUS spp.

37582. SORBUS ALNIFOLIA (Sieb. and Zucc.) Koch.
(*Crataegus alnifolia* Sieb. and Zucc.)

"A deciduous tree of rather slender, erect habit, ultimately 40 to 50 feet high; branchlets furnished with short silky hairs when quite young. Leaves of thin texture; 1½ to 3 inches long, three-fourths of an inch to 1½ inches wide; the apex pointed, the base rounded, margins double toothed; nerves parallel in 7 to 12 pairs; silky hairy

37578 to 37600—Continued.

beneath when young, becoming smooth later; stalk one-half to three-fourths inch long. Flowers white, one-half inch in diameter, produced during May in corymbs 2 to 3 inches across; calyx and flower stalks silky. Fruit one-third to one-half inch long, oval, bright red, no calyx adhering at the top.

"Native of Japan and Chosen (Korea); put in cultivation by Mr. Späth of Berlin about 1892, but may have been known before. It is one of the neatest and most pleasing of the *Micromeles* group, and is very appropriately named. The leaves are bright green beneath, and bear a close resemblance to those of an alder. Fine crops of fruits ripen, and they become very brightly colored, and remain long on the tree, but only a small proportion contain good seeds. Very deserving of cultivation." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 272,* under *Pyrus alnifolia.*)

37583. Sorbus aria salicifolia Myrin. **Whitebeam.**

"A tree usually 30 to 45 feet high in gardens, but occasionally met with 60 to 80 feet high; main branches more or less erect; young branchlets clothed with loose white down, becoming nearly smooth and lustrous dark brown by winter, and furnished with pale, wartlike excrescences. Leaves with 8 to 13 pairs of parallel ribs, oval or obovate; 2 to 4 inches long, half to two-thirds as wide; usually tapering, but sometimes rounded at the base, pointed or rounded at the apex; margins doubly toothed; upper surface bright green, smooth except when quite young; always covered with a close white felt beneath; stalk one-half to 1 inch long. Flowers dull white, heavy scented, about one-half inch across, and produced toward the end of May in corymbs 2 to 3 inches across; stalks and calyx covered with white down. Fruit oval or roundish, one-third to one-half inch long, scarlet-red, specked with brownish dots.

"Native of the British Isles and pretty general over Europe; also found in some of its forms in Asia Minor and North Africa. There is no tree more characteristic of the chalk hills of Britain or more beautiful in regard to foliage and fruit, but it is often reduced to a mere shrub. It is very effective in the breeze when the wind, by lifting the leaves, reveals the pure white under surface to the observer in kaleidoscopic glimpses. Although apparently preferring the limestone in a state of nature, it thrives quite well under cultivation in almost any well-drained soil. A tree well laden with the bright red fruits is also one of the most beautiful of autumn pictures; only, owing to the depredations of birds, often of short duration. It is best propagated by seeds, but the young plants grow very slowly at first. The timber is hard and heavy, but it is too scarce to count for much in the timber trade. The largest tree recorded by Elwes is at Camp Wood, near Henley-on-Thames, which in 1905 was 75 feet high by 4 feet 9 inches in girth of trunk.

"Var. *salicifolia*. Leaves narrower than in the type, but not so narrow as in var. *angustifolia;* stalks longer, as a rule." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 274–276,* under *Pyrus aria salicifolia.*)

37584 to 37586. Malus spp.

37578 to 37600—Continued.

37584. Malus baccata (L.) Moench. **Siberian crab apple.**
(*Pyrus baccata* L.)

See S. P. I. No. 37008 for description.

37585. Malus cerasifera Spach.

"A cross between *Pyrus prunifolia* and *P. baccata* and a very beautiful crab. Flowers white, fruit about the size of a cherry, colored purplish red. The calyx teeth sometimes remain on the fruit, as in *P. prunifolia*, sometimes fall away." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 291*, under *Pyrus cerasifera*.)

37586. Malus baccata (L.) Moench. **Siberian crab apple.**
Var. *maxima*.

37587. Pyrus canescens Spach.

"Probably a hybrid between *Pyrus nivalis* and *P. salicifolia*. In regard to it Decaisne wrote that 'it is intermediate between *P. nivalis* and *P. salicifolia;* its leaves are of the same size as those of *nivalis*, and often twisted as in *salicifolia*.' They are lanceolate or narrowly oval, finely round toothed, very white when young, shining dark green above when mature. Fruit pale green, much shorter stalked than *P. nivalis*. A handsome tree in spring." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 289*.)

37588. × Sorbus hostii (Jacq. f.) Heynh.

"*Pyrus hostii* (*Sorbus hostii* Hedlund) is a hybrid between the above [*P. chamaemespilus* Ehrhart] and some form or ally of *P. intermedia*. The foliage is much larger than of *P. chamaemespilus*, and more resembles that of *P. intermedia* in size and in the presence of down on the lower surface; the toothing is sharp and jagged. In the dense, compact inflorescence and in the upright, pinkish petals the influence of *P. chamaemespilus* is apparent. *P. hostii* is found wild on the Alps of Austria." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 280*.)

37589. × Sorbus latifolia (Lam.) Pers.
(*Pyrus rotundifolia* Moench.)

"A tree 30 to 45 feet, sometimes over 60 feet high; branchlets downy when young, becoming by winter shining and quite smooth. Leaves roundish ovate, 2 to 4 inches long, often nearly as wide at the base as they are long; the apex pointed, the base either truncate or broadly wedge shaped; margin either cut into triangular, pointed lobes which are sharply toothed, or simply jaggedly toothed; smooth, dark lustrous green above, covered beneath with a grayish felt; ribs 6 to 10 on each side; stalk downy, one-half to 1 inch long. Flowers white, five-eighths inch across, borne in corymbs 3 inches wide during May; stalks and calyx very woolly. Fruits globular, one-half inch in diameter, dull brownish red.

"This interesting tree was first discovered in the forest of Fontainebleau early in the 18th century. Its origin has given rise to considerable difference of opinion, but it is generally believed to be a hybrid between *Pyrus aria* and *Pyrus torminalis*. In many respects, notably in shape and woolliness of leaf, and in colour of fruit, it is certainly intermediate between them. Whether the Fontainebleau tree be a hybrid or not (and it is said to come true from seed), very similar ones found in middle

37578 to 37600—Continued.

Europe are almost certainly hybrids. The tree in various forms is found in the west of England. It has been much confused with *P. intermedia*, and in some of its forms approaches that tree in form of leaf. But it is usually much less downy on the lower surface by the end of the summer, the winter buds are paler, and the angle between the marginal lobes of the leaf is wider, often 90° in *P. latifolia*, whereas in *P. intermedia* it is frequently a mere slit at the base. There is a very fine old specimen in the Earl of Bathurst's woods at Cirencester, between 70 and 80 feet high and 11 feet in girth of trunk." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 286.*)

37590 to 37592. MALUS spp.

37590. MALUS PRUNIFOLIA (Willd.) Borkh. **Siberian crab apple.**
(*Pyrus prunifolia* Willd.)

"A small tree with downy young shoots and ovate or broadly oval leaves, 2 to 4 inches long, half or more than half as wide, unequally round toothed, downy beneath. Flowers white, 1½ inches across, produced in April in umbels of 6 to 10 blossoms; calyx with long, narrow, always woolly lobes. Fruit round or slightly ovoid and elongated, 1 inch in diameter, yellowish or red, crowned with the persistent calyx.

"There is some doubt as to the origin of this crab. Aiton gives the date of its introduction to England as 1758, and its native country as Siberia, to which other authors have added North China. But there appears to be no genuine proof of its existence in either country. It has been suggested that it is a hybrid between *P. baccata* and *P. malus*. It is distinguishable from *P. baccata* in fruit by having the calyx lobes nearly always adhering at the top, although not invariably. Although longer cultivated in Britain than *P. baccata*, it does not appear to have reached so large a size." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 290–291.*)

"This species, which is commonly known as the *Siberian crab*, is a tree native to Siberia and usually attains a height of 20 to 30 feet; the flowers greatly resemble those of the common pear, and the fruit when ripe is of a yellowish color with a slight tinge of red on the side exposed to the sun. The fruit is like that of the medlar; has an austere taste and is more palatable when decay has begun." (*Nicholson, Dictionary of Gardening.*)

37591. MALUS PRUNIFOLIA RINKI (Koidy.) Rehder.
(*Pyrus ringo* Wenzig.)

Var. *fastigiata bifera.*

"A small tree, usually under 20 feet in height, of graceful habit; young branches covered with grayish down. Leaves ovate or oval, 2 to 4 inches long; two-thirds as wide, downy above when young, permanently so beneath, sharply toothed; stalk one-half to three-fourths inch long, downy. Flowers in applelike clusters, each on a woolly stalk 1 to 1½ inches long, rosy red in bud, paler when open, becoming almost white; calyx lobes narrowly lanceolate, hairy on both sides. Fruit pendulous, 1¼ inches long, 1 inch wide, roundish, egg shaped, bright yellow, crowned by persistent calyx lobes.

"This tree appears to have been originally introduced to Europe by Siebold from Japan about the middle of last century, but it is

37578 to 37600—Continued.

not known to be anywhere wild in Japan. It is surmised to be a hybrid between *P. spectabilis* and some form of *P. malus*. As a tree for the garden its great attraction is its abundant, gracefully pendent, bright yellow fruits, which hang from the lower side of the branches in long, crowded rows and make it probably the handsomest of our yellow-fruited hardy trees. They have an applelike flavour and are quite pleasant eating.

"Var. *fastigiata bifera*. A tree of pyramidal habit, probably a hybrid between some form of *P. malus* and *P. ringo*. Fruit abundant, yellow, stained with red, about the size of a pigeon's egg." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 292.*)

37592. MALUS FUSCA (Raf.) Schneider.
(*Pyrus rivularis* Dougl.)

"A tree 20 to 30 feet high, often a shrub; branchlets slender, more or less downy. Leaves variously shaped, from broadly ovate to oblong lanceolate, often 3-lobed; the largest 4 inches long and 2½ inches wide, more often 1 to 3 inches long and half as wide; the base tapering, rounded, or slightly heart shaped, pointed at the apex, sharply toothed; downy on both sides; stalk downy, 1 to 1½ inches long. Flowers white or rose tinted, three-fourths inch across, produced in clusters of 6 to 12. Fruit egg shaped, one-half to three-fourths inch long, red, yellow, or greenish yellow, the calyx teeth fallen away from the top.

"Native of western North America; introduced in 1836, according to Loudon, but little known in cultivation now, although it is offered sometimes in tree catalogues of continental firms. It belongs to the *Toringo* group of crabs, but appears to have no special value for the garden. The fruit has an agreeable subacid taste, and the wood, being close and hard, is valued in the Western States for uses similar to those of apple and pear wood in this country." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 292.*)

37593. × SORBUS ALPINA (Willd.) Heynh.

"This species is commonly known as the *bastard* quince, and is a native of the mountainous parts of Europe. It is a shrub which attains a height of 5 to 6 feet. The flowers, which are of a reddish color, make their appearance in May and June. The leaves are ovate, serrate, glabrous, clothed when young with a deciduous down. The fruit is round and of a reddish color." (*Nicholson, Dictionary of Gardening.*)

"*Pyrus alpina*, Willdenow (*Sorbus alpina* Heynhold), is very nearly allied [to *dippelii*], having *P. aria* and *P. arbutifolia* as its parents. It differs from *P. dippelii* most markedly in having clear red fruits and in the leaves (upper surface especially) being less downy." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 282.*)

37594. ARONIA MELANOCARPA (Michx.) Elliott. **Black chokeberry.**
(*Pyrus melanocarpa* Willd.)

"This is a pretty native shrub which is found in the damp woods throughout the country, north and south. When in the woods it is often 8 to 10 feet high, but to be fully appreciated it must be seen as a bushy shrub. It has clusters of white flowers, usually on every branch, and

37578 to 37600—Continued.

later on the clusters change to berries, which become very black and handsome, especially in the late autumn, when the leaves have fallen. The foliage of this bush is of a shining green, changing in autumn to bright yellow, orange, and red." (*Florists' Exchange, August 23, 1913.*)

37595. SORBUS HYBRIDA L. **Bastard service tree.**
(*Pyrus pinnatifida* Ehrh.)

"A deciduous tree, 20 to 40, occasionally over 50 feet high, with ascending branches; twigs covered with loose grayish floss when young, becoming smooth and of a dark lustrous brown by winter. Leaves 3 to 5 inches long, 1 to 2 inches wide; narrowly oblong ovate in main outline, but usually pinnate or cut nearly to the midrib at the base, the upper portion lobed and toothed, but less deeply so toward the apex, which is merely coarsely toothed; the lower surface is covered with a dull gray, persistent down; leaf stalk one-half to 1¼ inches long, downy. Flowers white, about one-half inch wide, produced in May in corymbs 3 to 5 inches across. Fruit bright red, round oval, two-fifths inch long.

"This tree, especially handsome in foliage and fruit, is found wild in north and central Europe, and is generally believed to be a natural hybrid between *Pyrus intermedia* and *P. aucuparia.* The influence of the latter is seen in the larger leaves, especially of the sterile shoots, having usually from 1 to 3 pairs of leaflets at the base. On the flowering twigs many of the leaves are simple. It is found wild in the Isle of Arran, rarely in England. It is connected with both *intermedia* and *aucuparia* by intermediate forms, but as a rule reproduces itself true from seed. The habit generally is erect, but a form sent out by Messrs. Backhouse of York with more than usually erect branches is called var. *fastigiata.*" (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 289–290.*)

37596 to 37598. COTONEASTER spp.

37596. COTONEASTER DIVARICATA Rehd. and Wilson.

"This species of Cotoneaster, which is valued chiefly for its dark red, often long-persistent fruit, is a native of western China and was introduced into this country in 1909 by Mr. E. H. Wilson. It has been grown successfully in the gardens of the Arnold Arboretum, where it has stood the winters without severe injury. It promises to become a valuable garden plant in this country." (*Arnold Arboretum, Bulletin of Popular Information, No. 19, April 25, 1912.*)

"A deciduous shrub up to 6 feet high, of spreading habit; young shoots clothed with grayish hairs, becoming the second year smooth and reddish brown. Leaves roundish oval, sometimes ovate or obovate, tapered abruptly toward both ends, the apex mucronate; one-third to 1 inch long, one-fourth to five-eighths inch wide (smaller on the flowering shoots); dark glossy green, and soon smooth above, sparsely hairy beneath; veins in three or four pairs; leaf stalk one-twelfth inch or less long. Flowers usually in threes at the end of short twigs, often supplemented by solitary ones in the axils of the terminal leaves, rosy white; calyx lobes triangular, they and the tube loosely woolly. Fruit red, egg shaped, one-third inch long, carrying two stones.

37578 to 37600—Continued.

"Native of west Hupeh and west Szechwan, China; first found by Henry in the latter province about 1887; introduced to the Coombe Wood nursery by Wilson in 1904. It is one of the handsomest in fruit of Chinese Cotoneasters, and was given a first-class certificate by the Royal Horticultural Society in the autumn of 1912. It is allied to the Himalayan *C. simonsii*." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 408–409.*)

37597. **Cotoneaster pannosa** Franchet.

See S. P. I. Nos. 32936, 33043, and 33159 for previous introductions.

"This evergreen Cotoneaster hails from Yunnan, China, and it is one of the finest berried winter shrubs in cultivation. This species makes a splendid specimen for the lawn, as it has a graceful habit with its drooping, slender branches and small, grayish green leaves. This Cotoneaster is quite hardy in England and should do well against a wall, where it would make a good effect." (*Gardeners' Chronicle, March 4, 1913.*)

"An evergreen shrub of free and elegant habit, 10 feet or more high; branches arching and slender, covered with whitish felt when young. Leaves oval, tapering toward both ends, one-half to 1 inch long, about half as wide; always dull green above, covered with whitish felt beneath; stalk up to one-quarter inch long. Flowers one-quarter to three-eighths inch across, borne in corymbs of as many as 15 or 20; petals white, spreading; calyx woolly. Fruits scarcely one-quarter inch long, dull red.

"Native of Yunnan, China, up to 9,000 feet altitude; raised in Paris in 1888 from seed sent there by the Abbé Delavay. Introduced to Kew in 1892. The differences between this species and *Cotoneaster francheti* have already been alluded to under that species. Both are characterized by extreme elegance of habit, and by being very woolly on young bark, flower stalk, calyx, and under surface of leaves; but *C. pannosa* has duller leaves, less hairy when young on the upper surface, more spreading, whiter petals, and shorter, rounder fruits of a deeper red." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 414.*)

37598. **Cotoneaster salicifloria rugoas** (Pritz.) Rehd. and Wilson.

"I do not know that the typical *C. salicifolia* is in cultivation. It is a species of West Szechwan, China, discovered by the Abbé David nearly thirty years ago. It has white flowers and red, ovoid fruits, one-sixth of an inch long.

"Var. *rugosa*, Rehder and Wilson (*C. rugosa* Pritzel).—In this variety the leaves are larger, up to 3 inches long and 1¼ inches wide, the veins numbering six to twelve pairs. The fruit is coral red, larger than in var. *floccosa*, and contains usually two stones. The plant is more vigorous, coarser looking, and with bigger leaves than var. *floccosa*, but in many respects similar.

"Introduced by Wilson (No. 335) in 1907 from West Hupeh, where he found it 9 feet high." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 414–415.*)

37599. **Berberis hookeri** Lemaire. **Barberry.**

"*Compacta*. A compact form of *Berberis wallichiana* Hort."

See S. P. I. No. 37498 for previous introduction.

37578 to 37600—Continued.

37600. VIBURNUM BUREJAETICUM Regel and Herd.

For previous introduction, see Nos. 20115 and 33776.

"I am doubtful if the true plant to which this name belongs is now in cultivation, although it may be among recent introductions from China. What is usually seen under the name is *V. lantana* or one of its near allies. The true *burejaeticum* is quite distinct. A deciduous shrub whose young shoots are covered at first with a dense, stellate down, becoming almost white and smooth the second year. Leaves ovate, oval or slightly obovate; tapered, rounded, or slightly heart shaped at the base, tapered and often blunt at the apex; 2 to 4 inches long, 1 to 2 inches wide; evenly and angularly toothed, with scattered, mostly simple hairs above, and scattered stellate ones beneath, chiefly on the veins, becoming almost smooth; stalk one-quarter to one-half inch long, scurfy. Flowers white, uniform and perfect, one-quarter inch wide, produced in stalked usually 5-branched cymes, 2 inches across; the stalks covered with stellate scurfy down. Native of Manchuria and China." *(W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 643–644.)*

37601 to 37603. TRITICUM AESTIVUM L. Wheat.

(*Triticum vulgare* Vill.)

From Wageningen, Holland. Presented by Mr. C. J. Hessing, Institute for the Improvement of Agriculture. Received March 27, 1914.

37601. *Wilhelmina.*

37602. *Imperial.*

37603. *Millioen.*

37604 and 37605.

From Victoria, Kamerun, German West Africa. Presented by the Agricultural Experiment Station for Victoria. Received March 27, 1914.

37604. ELEUSINE CORACANA (L.) Gaertn. Ragi.

Native names in the following languages: *Njaderi*, Fulah; *Sigge*, Mbum.

37605. SESAMUM ORIENTALE L. Sesame.
(*Sesamum indicum* L.)

Native names in the following languages: *Sam*, Mbum; *Sidi*, Hausa; *Dam*, Wute; *Manasiri*, Fulah.

37606. × CYDONIA VEITCHII Trabut. Pyronia.

From Algiers, Algeria. Presented by Dr. L. Trabut, director, Service Botanique. Received April 1, 1914.

"I am cultivating three hybrids of Cydonia and Pyrus of Veitch's. These plants here are very vigorous and they seem bound to furnish an excellent stock for pears. I am sending you Pyronia A. [a hybrid between Cydonia (Portugal quince) and Pyrus (Bergamotte Esperen), produced by Mr. John Seden in 1895], which will take the name *Pyronia veitchii* Trabut in my article in the Journal of the Royal Horticultural Society." *(Trabut.)*

37607. PINANGA INSIGNIS Beccari. Palm.

From Los Banos, Philippine Islands. Presented by Mr. C. F. Baker, University of the Philippines, College of Agriculture. Received March 2, 1914.

"From high on Mount Maquiling, Province of Laguna. This is a very stately and fine red-fruited palm, said to be near *Areca catechu*, but very different in fruit from that species, although the fruit is sometimes used in the same way." (*Baker.*)

37608. ALLIUM TRIFOLIATUM Cyrillo.

From Algiers, Algeria. Presented by Dr. L. Trabut, director, Service Botanique. Received March 24, 1914.

"This plant forms a turf. The leaf is very good as a condiment, after the fashion of chives." (*Trabut.*)

Distribution.—An herbaceous perennial found in the countries bordering on the Mediterranean Sea from Italy eastward to Syria and Palestine.

Bulbils.

37609. COIX LACRYMA-JOBI L. Job's-tears.

From Singapore, Straits Settlements. Presented by Mr. I. H. Burkhill, Singapore Botanic Gardens. Received March 21, 1914.

37610 to 37612.

From Kew, England. Presented by Sir David Prain, director, Royal Botanic Gardens. Received March 23, 1914.

37610 and 37611. SPIRAEA spp.

37610. SPIRAEA VEITCHI Hemsley.

"This is a new species which was discovered in China by Mr. E. H. Wilson and through him it has been introduced into cultivation. The plant forms a neat compact shrub, with thin growths 6 to 8 feet long, of a reddish brown clothed with small glaucous-green, oblong-lanceolate leaves, serrate along their apical portion. The flowers of the short side growths along the whole length of the previous year's shoots are in terminal corymbs, pure white and very showy in mass." (*Hortus Veitchii*, p. 379.)

37611. SPIRAEA WILSONI Duthie.

"This Spiraea, which was introduced a few years ago from China by Mr. E. H. Wilson, has proven to be a most valuable addition to deciduous flowering shrubs. Robust in growth, *Spiraea wilsoni* forms a large spreading bush 5 to 6 feet in height. The inflorescences of white flowers terminate short axillary shoots, which develop from the upper two-thirds of last year's vigorous shoots. As these bend over in a graceful, arching manner, a bush in full flower presents a pleasing picture. The flowers are borne in flattened, rather compact, rounded corymbs, about the middle of June. The corymbs are about 1½ to 2½ inches across, the individual flowers a quarter of an inch in diameter. *S. wilsoni* makes a nice lawn specimen for small or large gardens, while for large clumps and shrubby borders it is well worth consideration." (*The Garden, August 30, 1913.*)

37610 to 37612—Continued.

37612. VIBURNUM SARGENTI Koehne.

"This shrub usually grows from 5 to 8 feet tall, with upright branches which, on adult plants, assume a dark-gray, corky appearance. The leaves are roundish ovate to ovate, usually 3-lobed, rounded to square at the base, 2½ inches long and 2 inches broad, dark yellowish green and smooth above, pale green and somewhat pilose beneath. The flattish corymbose flower cluster, with prominent showy neutral flowers surrounded by the corymbs, and the fertile flowers with purple anthers come in blossom about the first of June. The subglobose or rounded fruit, scarlet or orange-scarlet, ripens in September. This species greatly resembles *Viburnum americana*, but differs from it in its more upright habit, largely ray flowers, and the fruits are not as brilliant and are considerably smaller and less abundant. *Viburnum sargenti* is perfectly hardy at Rochester, N. Y., and there it is a very useful park and garden shrub." (*The Florists' Exchange, May 20, 1911*).

37613 to 37622.

From Cambridge, England. Presented by Mr. R. Irwin Lynch, curator, Botanic Garden. Received March 24, 1914.

37613. AMYGDALUS PERSICA L. **Peach.**
(*Prunus persica* Stokes.)

37614. CYDONIA OBLONGA Miller. **Quince.**
(*Pyrus cydonia* L.)

See S. P. I. No. 30059 for previous introduction and description.

37615. LAUROCERASUS LUSITANICA (L.) Roem.
(*Prunus lusitanica* L.) **Portuguese cherry laurel.**

"An evergreen shrub of wide, bushy form, usually 10 to 20 feet, but occasionally 40 to 50 feet high, more in diameter; young branches quite smooth and very dark. Leaves ovate or oval, 2½ to 5 inches long, 1¼ to 2 inches wide; quite smooth on both surfaces; very dark, glossy green above, paler below; shallowly roundish toothed. Racemes produced in June from the ends of the previous summer's shoots and from the axils of their leaves; 6 to 10 inches long, 1 to 1¼ inches through, more or less erect. Flowers white, one-third to one-half inch across, calyx cup shaped, with shallow, rounded lobes; stalk one-third of an inch long. Fruit dark purple, one-third of an inch long, cone shaped, pointed. 'Native of Spain and Portugal; introduced in 1648' (*Alton*). In all but the coldest parts of Great Britain the Portugal laurel is one of the handsomest and most effective of evergreens. It should be grown as isolated specimens, especially in thinly wooded parts of the grounds. Although it is chiefly valued for the luxuriance of its rich green lustrous foliage, it has some merit as a flowering shrub, for in June it produces an extraordinary profusion of long, slender racemes, whose only defect is that the flowers are rather dull. It is hardier than the cherry laurel, and on warm, well-drained soil withstands 32 degrees of frost without being in the least affected." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 241*).

37616. MALUS BACCATA (L.) Moench. **Siberian crab apple.**
(*Pyrus baccata* L.)

See S. P. I. Nos. 26681 and 31028 for previous introductions.

37613 to 37622—Continued.

37617. MALUS PRUNIFOLIA (Willd.) Borkh. **Siberian crab apple.**
(*Pyrus prunifolia* Willd.)

See S. P. I. Nos. 27124 and 30251 for previous introductions and S. P. I. No. 37590 for description.

37618. MESPILUS GERMANICA L. **Medlar.**

See S. P. I. No. 29197 for previous introduction.

"A low deciduous tree of crooked, picturesque habit, usually under 20 feet high; young branchlets very hairy, older ones armed with stiff, straight spines one-half to 1 inch long. Leaves almost without stalks, lanceolate or oval, 2 to 5 inches long, minutely toothed; downy on both surfaces, but more so beneath. Flowers solitary at the end of short leafy branches; about 1 inch across, white or slightly pink, produced on a very short, woolly stalk in May or early June. Petals five, roundish; sepals covered with gray wool, triangular at the base, drawn into a long, narrow point standing out beyond the petals. Fruit five celled, apple shaped, brown, with a broad, open eye, surrounded by the persistent calyx, and showing the ends of the bony seed vessels.

"The wild medlar is a native of Europe and Asia Minor and is found wild in the woods of several counties in the south of England, notably Sussex and Kent, but it is not believed to be truly indigenous. It has long been cultivated for its fruit in English orchards, and several named varieties exist. The cultivated forms are distinguished by thornless or nearly thornless branches, by larger, broader leaves, and by larger fruits, up to 1½ or 2 inches across. Although much esteemed by those who have acquired the taste for them, medlars are not a popular fruit. They should be left on the tree until the end of October or later, then stored in a fruit room until they are 'bletted'—a term given to indicate a state of incipient decay. A jelly made from the fruits meets a more general taste. The medlar is most closely allied to Crataegus, differing in the solitary flower, etc. It is very hardy and not particular as to soil." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 81–82.*)

37619. PRUNUS DOMESTICA INSITITIA (Jusl.) Schneider. **Bullace.**
(*Prunus institia* Jusl.)

"This species of Prunus is a tall, much-branched shrub, which sometimes attains a height of 20 feet. The flowers are white and appear on the branches before the leaves. The lateral clusters are only one to two flowered. The fruit of this species is globose, nearly black, and in the wild state about one-half inch in diameter." (*Britton and Brown, Illustrated Flora of the Northern States and Canada.*)

"A small deciduous tree with foliage similar to that of *Prunus communis*, but with some of its branches spiny. Fruit globular, three-fourths inch in diameter, black or yellow; several white-fruited varieties are grown in orchards. The bullace is a native of Britain and other parts of Europe. Being found in many hedgerows, the typical form scarcely deserves a place in the arboretum, but the double-flowered variety is more ornamental. *P. spinosa*, *insititia*, and *communis* are by some authorities considered as all forms of one species. It is easy enough to distinguish *P. spinosa* by its black bark, its small, sharply toothed

37613 to 37622—Continued.

leaves, and small, round, black fruits. But *P. insititia* and *communis* are more closely allied; they both have brown bark, larger and more bluntly toothed leaves, but the fruit of the bullace is round and often white or yellow, whilst the plum is black and oval. Intermediate forms occur, of which the damson is one, having an oval, purple, sour fruit. (The damsons take their name from Damascus, where they have been cultivated since before the Christian era.) The Mirabelle group of plums, with round, yellow fruits, acid and sweet, belong to *P. insititia*." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 238.*)

37620. PYRUS SALICIFOLIA Pall. **Willow-leaved pear.**

See S. P. I. No. 26764 for previous introduction and description.

"A tree 15 to 25 feet high, branchlets covered with down, which is quite white when young. Leaves 1½ to 3½ inches long, one-third to two-thirds inch wide; narrowly lanceolate, tapering gradually towards both ends, covered when young on both sides with a beautiful silvery gray down; later in the year this falls away from the upper surface, leaving it shining green; margins quite entire; stalk one-half inch long or less, sometimes scarcely noticeable. Flowers pure white, about three-fourths inch across, produced in April, closely packed in small rounded corymbs, the calyx and flower stalk covered with white wool. Fruit of the typical pear shape, 1 to 1¼ inches long and wide.

"Native of southeastern Europe and Asia Minor; introduced in 1780. It is much the most ornamental of all true pears. Its leaves and flowers often open simultaneously, and it then presents a very charming picture, the willowlike leaves being of a conspicuous silky white. After the flowers fade, the leaves remain silvery for some weeks, gradually, however, becoming greener on the upper surface. The fruit is harsh to the palate and of no value." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 292–293.*)

37621 and 37622. RIBES spp.

37621. RIBES ALPINUM L. **Currant.**

"This species of Ribes which is commonly called the *Mountain* currant is a native of the mountains of Europe and the Orient. The branches are whitish and upright and the leaves slightly hairy above. The flowers, which are diœcious, are yellowish green in color and occur in staminate and pistillate clusters, the former having 20 to 30 flowers and the latter 5 to 10 flowers to the cluster. The peduncles are glandular hairy, and the bracts are longer than the pedicel and flower. The fruit of this species is smooth, scarlet colored, and insipid or sweetish to the taste." (*Bailey, Cyclopedia of American Horticulture.*)

37622. RIBES SPECIOSUM Pursh. **Gooseberry.**

This is a hardy shrub which is a native of California and apparently of Mexico. If this species can not be said to be so beautiful a shrub as *Ribes sanguineum*, the *Scarlet* currant, it is at least by far the most elegant of gooseberries and considered by some to be the most showy member of the genus. In brilliancy of color it is perhaps superior to that species, and in the abundance of flowers nearly its equal. With all its beauty, however, this species has the demerit, common to all gooseberries, of hiding its pretty bright red

37613 to 37622—Continued.

flowers with its leaves. The branches are covered with fine reddish prickles and glandular tipped hairs. The thorns are long, slender, and occur commonly in threes. The leaves are small, thick, shining, and partially evergreen. The berries are small, prickly, dry, and few seeded. (Adapted from *Botanical Register, vol. 18, pl. 1557* (*1832*), and *Bailey, Cyclopedia of American Horticulture.*)

37623. CITRUS sp. **Orange.**

From Singapore, Straits Settlements. Presented by Capt. J. Prentice, Corps of Engineers, United States Army. Received March 19, 1914.

"Seeds from Johore oranges. A very fine variety of free peelers, sweet, russet skin. To be tested in Florida." (*Prentice.*)

37624. CUCUMIS MELO L. **Muskmelon.**

From Barcelona, Spain. Presented by Mr. Henry H. Morgan, American consul general. Received March 19, 1914.

"The so-called *Valencia*, which matures in the late fall and keeps in good condition for three or four months, melons of this variety being obtainable throughout Spain as late as the month of February. These melons do not generally ripen on the vine, but are gathered while green and hung in nets from the ceiling and doorways, after they have been gathered and exposed to the air and sun, where the ripening process is completed. The sweetest and most exquisite varieties are grown in warm climates, somewhat tempered by fresh winds. Melons can be grown to perfection with a bottom heat of 75° F., gradually increasing to 80°, and an atmospheric temperature of 75° to 80° when the fruit is swelling, as much sun heat as the plant can bear being allowed at all times. The melon thrives best in rich turfy loam, somewhat heavy, with which a little well-rotted manure has been mixed. In planting, the seeds are almost invariably used. Shoots are also employed, although to a very limited extent. Once the seeds are put in the ground the plant is allowed to thrive and no transplanting takes place. Melons exposed to the south and west always crack, which is remedied somewhat by turning the fruit over and changing its position. The purer the water applied the sweeter the fruit will be. Cold and impure water from wells has a prejudicial effect. When the soil contains too much humidity wooden boards or tiles should be placed under the fruit, thus preventing it from rotting. The melon is ripe when its stem changes color and tends to separate itself from the fruit. The best grades are solid and heavy, with a shiny peel. The winter melons, which are gathered before ripening, will subsequently become completely seasoned. These fruits should be gathered in dry periods and never immediately after a heavy rainfall. The best time to pick melons is at daybreak." (Extract from *Consular report*, "*Melon Cultivation in Spain.*")

37625 and 37626.

From Zacuapam, Huatusco, Vera Cruz, Mexico. Presented by Dr. C. A. Purpus. Roots received March 30, 1914.

37625. EUCHLAENA MEXICANA Schrad. **Teosinte.**

"From Coscomatepec, Vera Cruz, a railroad station between Cordoba and Huatusco. I saw the grass teosinte in several of the fields near that town. It is raised as a forage plant. This grass seems to be a little tender, because I saw it was damaged some by frost, which is not unusual

37625 and 37626—Continued.

in that place, because it must be 400 to 500 feet high and is situated at the foot of Citlaltepetl, the so-called Peak of Orizaba. This grass is not propagated by seed, but, like sugar cane, by cuttings. The lower parts of the stems are cut like sugar cane and put into the ground. It grows in bundles and stands frost to a certain degree." (*Purpus.*)

37626. POLYGONUM SACHALINENSE F. Schmidt. **Sacaline.**

"Forage plant from Japan."

37627 to 37631.

From Paris, France. Presented by the director, Museum of Natural History. Received March 18, 1914.

37627. DIOSPYROS LOTUS L. **Persimmon.**

For previous introductions, see S. P. I. Nos. 36808 and 37380.

37628. PRUNUS sp.

Received as *Cerasus salicifolia*, but the seeds do not agree with those in the seed collection under this name.

37629. PRUNUS DOMESTICA L.

"Var. *armenioides* Lieg."

For previous introduction, see S. P. I. No. 33170.

37630. PRUNUS CERASIFERA DIVARICATA (Ledeb.) Schneider.

See S. P. I. Nos. 37463 and 37464 for previous introductions.

37631. LAUROCERASUS ILICIFOLIA (Nutt.) Roemer. **Cherry laurel.**
(*Prunus ilicifolia* Walp.)

"This is an evergreen bush or tree commonly known as the *Spanish wild cherry* or the *mountain evergreen cherry*. It is a small tree, rarely becoming 30 feet tall, with a dense crown. The leaves are ovate to ovate-lanceolate and hollylike, acute, or sometimes acuminate, mostly broad and sometimes rounded at the base. The margins are coarsely spiny toothed and the blades thick and shining. The flowers are white and are borne in slender racemes less than 2 inches long in the spring. The fruits are rather large, sometimes two-thirds of an inch long, nearly globose, purple or nearly black. This species is a most worthy garden plant and may be seen growing from San Francisco to Lower California." (*Bailey, Cyclopedia of American Horticulture.*)

37632 to 37637. ORYZA SATIVA L. Rice.

From Mandalay, Burma, India. Presented by Mr. E. Thompstone, Deputy Director of Agriculture, Northern Circle. Received March 31, 1914.

Quoted notes by Mr. Thompstone, except as indicated.

"*Rangoon* or *Rangooni Chal.* Certain samples of rice under the vernacular name were collected by this office in Khulna in 1906. This is a kind of *Atap* and is aso sold in Calcutta. The *Rangoon Chal* is cheaper than the *Deshi* variety of *Atap* and is generally consumed by the poorer classes. I am inclined to believe that rice imported from Rangoon is generally called *Rangoon* or *Rangooni Chal.*" (Extract from *Letter, April 9, 1914, Botanical Survey of India.*)

37632. "No. 2. *Ngaseingyi.* This is a *Kauk kyi* or main crop and is transplanted in July or August when the nursery plants are 30 to 45 days old. Longevity is about 125 days from transplanting; good to eat and is in great demand for milling."

37632 to 37637—Contd. (Quoted notes by Mr. E. Thompstone.)

37633. "No. 6. *Taungteik pan.* This is also a main crop, transplanted in July or August when the nursery plants are 30 to 45 days old. Longevity is about 110 days from transplanting. Grains small and soft; consumed largely by well-to-do people."

37634. "No. 55. *Nga cheik.* Main crop, transplanted in July or August when the nursery plants are 30 to 45 days old. Longevity is about 115 days from transplanting. It is a glutinous rice of black color; good to eat."

37635. "No. 157. *Mya wa.* Main crop, transplanted in July or August when the nursery plants are 30 to 45 days old. Longevity is about 115 days from transplanting. Glutinous; fairly good to eat."

37636. "No. 280. *Byat pyu.* Main crop, transplanted in July or August when the nursery plants are 30 to 45 days old. Longevity is about 110 days from transplanting. Good to eat; consumed largely."

37637. "No. 395. *Kyaung byu.* Main crop, transplanted in July or August when the nursery plants are 30 to 45 days old. Longevity is about 95 days. Rice soft, good to eat."

37638 to 37646.

From St. Petersburg, Russia. Presented by the director, Imperial Botanic Gardens. Received March 19, 1914.

37638. CORONILLA SCORPIOIDES (L.) Koch.

See S. P. I. No. 30106 for previous introduction.

37639. MEDICAGO FALCATA × SATIVA.

37640. CLEMATIS FUSCA MANDSHURICA Regel. Clematis.

Distribution.—A suberect herbaceous perennial with grayish brown flowers, found in the eastern part of Asia from the Baikal region eastward to Kamchatka and Sakhalin, and in Japan.

"A semiherbaceous climber, 8 or 9 feet high, stems angled, downy when young. Leaves pinnate, 4 to 8 inches long, and composed mostly of five or seven leaflets, which are ovate with a rounded or heart-shaped base, and often long, tapering points, not toothed; smooth or slightly downy beneath. Flowers solitary on stout stalks, which are one-half to 1 inch long, and thickly covered with reddish brown hairs. The flower has the pitcher shape of the Viorna group, the sepals being three-fourths to 1 inch long, the points recurved; outside they are reddish brown, woolly. Seed vessels with tails about 1¼ inches long, plumed with yellowish brown, silky hairs. Native of northeastern Asia, from Asiatic Russia through Manchuria to the Kuril Islands. It is an interesting but not very ornamental plant, distinct in its group because of the very short, hairy flower stalks and the hairiness generally of the flower. It grows very well and produces abundant seed." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 360.*)

37641. CRATAEGUS OXYACANTHA L. Hawthorn.

"Var. *incisa*."

37642. PRUNUS PROSTRATA Labill. Bush cherry.

For previous introduction and description, see S. P. I. No. 28945.

"A deciduous shrub, 2 to 3 feet high, of low, spreading habit and measuring much more in width than it does in height. Branches slender,

37638 to 37646—Continued.

arching outwards and downwards, the young ones covered with a minute, dark-colored down. Leaves ovate or obovate, pointed, from 1 to 1½ inches long, sharply toothed, and downy beneath (less markedly so in cultivation). Flowers one-half to three-fourths of an inch across, produced singly or in pairs with the young leaf clusters from the previous season's shoots in April, very short stalked; petals of a lively rose color; calyx tubular. Fruit almost stalkless, red, one-third of an inch long, tapering towards the end.

"Native of the mountains of the Levant, where it usually makes a close, stunted bush, very unlike the rather free-growing plant seen in this country. It needs a sunny position and is admirably suited on some roomy shelf in the rock garden fully exposed to the sun. In such a position, following a hot summer, it flowers profusely enough to almost hide its branches. It is perfectly hardy at Kew, and it is rather remarkable that it remains so rare and little known, seeing that it was introduced (from Mt. Lebanon) in 1802." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 248–249.*)

37643. LONICERA CHRYSANTHA Turcz. **Honeysuckle.**

"This species of Lonicera, which is valued chiefly for its dark red fruits, is one of the most conspicuous of the early-flowering species. It is a native of eastern Siberia, and since its introduction by Mr. E. H. Wilson in 1910 has proven perfectly hardy in the gardens of the Arnold Arboretum." (*Arnold Arboretum Bulletin of Popular Information, Nos. 19 and 23, April 25 and May 22, 1912.*)

37644. LONICERA RUPRECHTIANA Regel. **Honeysuckle.**

"This shrub sometimes attains a height of 12 feet. The leaves are ovate lanceolate, acuminate, usually dark green above, grayish pubescent beneath, 2 to 4 inches long. The flowers are borne on rather long peduncles which are pure white at first and glabrous on the outside. The fruits make their appearance in May or June, and they are usually red but at times yellow. This species of Lonicera is much rarer than its hybrids with *L. tatarica*." (*Bailey, Cyclopedia of American Horticulture.*)

37645. PRUNUS GRAYANA Maxim. **Bird cherry.**

"This species of Prunus occurs throughout the forest regions of Japan, and it is also frequently seen on the plains of Yezo. The flowers, which occur in racemes, make their appearance in early June and are followed in August by black fruits. In shape this species greatly resembles *P. padus*, the main difference being in the flowers, which are less fragrant." (*Bul. Acad. Imp. Sciences, St. Petersburg, vol. 29 (1884), p. 107.*)

"A native of Japan, where it is a small tree 20 to 30 feet high, with a slender trunk. This species is very closely allied to our common bird cherry (*Prunus padus*), differing chiefly in the leaves, which have no glands on the very short stalks (almost invariably present in *P. padus*), and in the teeth being finer and more hairlike. The white flowers are borne in erect racemes up to 4 inches long. Fruit black, about the size of peas, narrowing toward the apex. The species inhabits the mountain forests of the main island of Japan and the southern parts of Yezo. The true plant is very uncommon in cultivation." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 237.*)

37638 to 37646—Continued.

37646. PRUNUS MAACKII Ruprecht. **Manchurian bird cherry.**

"This species of Prunus, which is a native of the region around the lower Amur River, is a tree which attains a height of 35 feet. The young shoots have a glistening reddish brown bark, greatly resembling that of the ordinary cherry, which breaks and peels away from the branches in leafy flakes. The fruits of this species are black and about half the size of those of *Prunus padus*." (*Bul. Acad. Imp. Sciences, St. Petersburg, vol. 15 (1857), p. 361.*)

"A Manchurian bird cherry, up to 40 feet or more high in a wild state; very distinct, through the bark of the trunk being smooth and of a striking brownish yellow color and peeling like that of a birch; young wood downy. The leaves are ovate, rounded at the base, pointed, very finely toothed; 3 or 4 inches long, by about half as wide; they are hairy on the midrib and veins, and are rendered very distinct by being covered with glandular dots on the lower surface. Raceme 2 to 3 inches long, springing from the previous season's wood; calyx tube cylindrical, bell shaped, the lobes glandular toothed; petals white, not so long as the stamens.

"Introduced to cultivation by way of St. Petersburg in 1910; the cultivated plants already show the distinct, smooth, yellowish trunk. It is different from ordinary bird cherries in the racemes coming on the year-old wood and from the laurels in being deciduous." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 241–242.*)

INDEX OF COMMON AND SCIENTIFIC NAMES.

Abelia triflora, 37478.
Acrocomia sclerocarpa, 37382.
Adzuki bean (*Phaseolus angularis*), 37002, 37003, 37038, 37039, 37057, 37058, 37357–37366, 37395, 37575.
Aglaia edulis, 37506.
Aleurites fordii, 36993.
Alicuri palm (*Cocos coronata*), 36972.
Allium trifoliatum, 37608.
Alyxia bracteolosa. See *Gynopogon bracteolosa*.
Amawele (*Holcus sorghum*), 36962.
Amburana claudii, 37019.
Amendoim do matto (*Crotalaria anagyroides*), 37389.
Amorphophallus sp., 37394.
Amygdalus pedunculata, 37559.
  persica, 37613.
Anacardium occidentale, 37027, 37028.
Anil, *Indigofera suffruticosa*, 37391.
Annona cherimola, 37117, 37221.
  (Costa Rica), 37117.
  (France), 37221.
  Jara, 37117.
Apple, crab, Siberian. See *Malus baccata*.
  Transbaikal (*Malus baccata*), 37008.
Apricot (*Prunus armeniaca*), 37006, 37072, 37073, 37474.
  Baikal (*Prunus sibirica*), 37006.
  (China), 37072, 37073, 37474.
  Pai hsiang hsing êrh, 37072.
  (Siberia), 37006.
  Ta hsing, 37474.
  white, 37073.
Aralia cordata, 37145–37152.
Arnotto (*Bixa orellana*), 37505.
Aronia melanocarpa, 37594.
Artabotrys odoratissimus. See *Artabotrys uncinatus*.
  uncinatus, 37013.
Asparagus bean (*Vigna sesquipedalis*), 37565.
Asparagus gonocladus, 37578.
  gracilis, 37579.
  plumosus, 37580.
  scandens, 37581.
  (Scotland), 37578–37581.
Atalantia hindsii. See *Fortunella hindsii*.
Avena sterilis, 37405.
  sterilis segetalis f. *nigra*, 37405.
Avocado (*Persea americana*), 37035, 37059, 37061.
  (Brazil), 37035.
  (Hawaii), 37061.
  (Samoa), 37059.

Bactris caryotaefolia, 37095.
Bamboo (*Bambos* sp.), 37556.
  (*Bambos guadua*), 37009.
  (China), 37555, 37556.
  (*Dendrocalamus strictus*), 37223.
  (*Phyllostachys puberula nigra*), 37555.
  (India), 37129, 37223.
  Lo han chu chih, 37556.
  Mei chu chih, 37555.
  (Paraguay), 37009.
  Takuara, 37009.
Bambos sp., 37129, 37556.
  guadua, 37009.
Banana (*Musa* spp.), 36984, 37032.
Banlung taro (*Colocasia esculenta*), 37393.
Banyan, native (*Ficus rubiginosa*), 37141.
Barberry (*Berberis* spp.):
  (Ireland), 37495–37499.
  (Scotland), 37599.
  (Spain), 37560–37562.
Barklya syringifolia, 37134.
Barley (*Hordeum vulgare*):
  (Baluchistan), 36939.
  (Siberia), 37156.
  (Syria), 37031.
Bauhinia hookeri, 37135.

Bean, adzuki (*Phaseolus angularis*), 37002, 37003, 37038, 37039, 37057, 37058, 37357–37366, 37395, 37575.
  asparagus (*Vigna sesquipedalis*), 37565.
  bonavist (*Dolichos lablab*), 37081.
  (Brazil), 36970, 37023, 37024, 37220.
  (China), 37079.
  Climbing mountain (*Phaseolus calcaratus*), 36988.
  common (*Phaseolus vulgaris*), 36970, 37023, 37024, 37079, 37220, 37369–37374.
  date (*Soja max*), 37396.
  gray, 37038.
  green pot, 37056.
  Hung yün tou, 37079.
  Lima (*Phaseolus lunatus*), 37112, 37113.
  little devil (*Phaseolus calcaratus*), 36988.
  lu tou (*Phaseolus aureus*), 37078.
  mambi (*Phaseolus calcaratus*), 36988.
  Mauritius (*Stizolobium aterrimum*), 36989.
  mulata gorda, 37024.
  mulatinha, 37220.
  mung (*Phaseolus aureus*), 37056, 37078, 37367, 37368, 37576.
  (Nigeria), 37112, 37113.
  red pot, 37057.
  rice (*Phaseolus calcaratus*), 36988.
  Tonkin long (*Vigna cylindrica*), 37564.
  white-eye black, 37039.
  white pot, 37058.
  yard-long (*Vigna sesquipedalis*), 37565.
Begonia sp., 37386.
Berberis sp., 37562.
  gagnepaini, 37495.
  hookeri, 37498, 37599.
  macracantha, 37560.
  × *neuberti*, 37561.
  prattii, 37496.
  subcaulialata, 37497.
  wilsonae, 37499.
Bermuda grass (*Capriola dactylon*), 36953, 37508.
Berseem (*Trifolium alexandrinum*), 36966.
Betula fruticosa, 37007.
Bhabar (*Ischaemum binatum*), 37014.
Birch (*Betula fruticosa*), 37007.
Bixa orellana, 37505.
Bonavist bean (*Dolichos lablab*), 37081.
Brachychiton acerifolium, 37136.
Bradburya sp., 37493.
Bromelia sp., 36967.
Buckwheat (*Fagopyrum vulgare*), 37166.
Buhyka (*Betula fruticosa*), 37007.
Bullace (*Prunus domestica insititia*), 37619.

Cabbage, Kerguelen (*Pringlea antiscorbutica*), 37554.
Cabacinha do campo (*Eugenia klotzschiana*), 37392, 37492.
Cacao, criollo (*Theobroma cacao*), 36974.
Cactus. See *Opuntia* spp. and *Pereskia* sp.
Cajú amarella (*Anacardium occidentale*), 37028.
  manteiga (*Anacardium occidentale*), 37027.
Cambucá (*Myrciaria edulis*), 37094.
Campomanesia guaviroba, 37491.
  obversa, 37064.
Capim gordura (*Melinis minutiflora*), 37388.
Capriola dactylon, 36953, 37508.
Caragana arborescens, 36991.
Cardinal's-cap (*Euonymus alatus*), 37479, 37541.
Carica papaya, 36987, 37118, 37122–37124, 37577.
Caryophyllus jambos, 36978.
Cashew (*Anacardium occidentale*), 37027, 37028.
Cassia brewsteri tomentella, 37137.
Castanea mollissima, 37547, 37548.
Castanospermum australe, 37138.
Casuarina sumatrana, 37119.
Catete (*Zea mays*), 36976.
Cerasus salicifolia. See *Prunus* sp.
Ceropegia thorncroftii, 37217.
Cha tou (*Soja max*), 37075.
Chaenomeles lagenaria cathayensis, 37558.
Chayota edulis, 37126.

Chayote (*Chayota edulis*), 37126.

Cherimoya (*Annona cherimola*), 37117, 37221.

Cherry, bird (*Prunus grayana*), 37645.
  bush (*Prunus prostrata*), 37642.
  Manchurian bird (*Prunus maackii*), 37646.
  mountain evergreen (*Laurocerasus ilicifolia*), 37631.
  Spanish wild (*Laurocerasus ilicifolia*), 37631.
  laurel (*Laurocerasus ilicifolia*), 37631.
  laurel, Portuguese (*Laurocerasus lusitanica*), 37615.
  pea (*Phaseolus angularis*), 37395.

Chestnut (*Castanea molissima*), 37547, 37548.
  K'uei li tzŭ, 37548.

Chien pan hu t'i la mei (*Meratia praecox*), 37523.

Chien ting shih tzŭ (*Diospyros kaki*), 37536.

Chimonanthus fragrans. See *Meratia praecox*.

Ch'in shih tzŭ (*Diospyros kaki*), 37528.

Chinese allspice. See *Meratia praecox*.

Ching mien shih tzŭ (*Diospyros kaki*), 37472.

Ching tou (*Soja max*), 37080.

Ch'iu chien ting shih tzŭ (*Diospyros kaki*), 37531.

Chung tai shih tzŭ (*Diospyros kaki*), 37534.

Chokeberry, black (*Aronia melanocarpa*), 37594.

Chrysopogon aciculatus, 37567.

Chu kuan shih tzŭ (*Diospyros kaki*), 37468.

Citron (*Citrus medica*), 36943.

Citrus spp., 36949–36951, 37084, 37623.
  aurantium, 36971, 36975.
  grandis, 36944–36946.
  medica, 36943.
  sinensis, 36942, 36947, 36948, 37461.

Civet-cat fruit (*Durio zibethinus*), 37103.

Claw spud (*Amorphophallus* sp.), 37394.

Clematis fusca mandshurica, 37640.

Clover, red. See *Trifolium pratense*.
  wild (*Trifolium lupinaster*), 37165.

Cocos coronata, 36972.
  schizophylla, 37021.

Coix lacryma-jobi, 36994, 37120, 37227, 37609.

Colocasia sp., 37033.
  antiquorum, 37266.
  esculenta, 36955–36958, 37096, 37097, 37393, 37509–37516.

Cordia obliqua, 37224.
  suaveolens, 37121.

Corn (*Zea mays*):
  (Brazil), 36976, 37387.
  Catete, 36976.
  communis minor, 37219.
  (Paraguay), 37219.
  (Samoa), 36996.

Coronilla scorpioides, 37638.

Cotoneaster divaricata, 37596.
  pannosa, 37597.
  salicifolia rugosa, 37598.

Cotton (*Gossypium barbadense*), 37125.
  Egyptian, 37125.

Cowpea (*Vigna* spp.):
  (Brazil), 37022.
  (China), 37076.
  (Chosen), 37375.
  Dariya amariya, 37104.
  Farin wake, 37110.
  (France), 37564.
  Hunum marini, 37105.
  (Nigeria), 37104–37111.
  P'a tou, 37076.
  (Reunion), 36990.
  Saka-baba-sata, 37109.
  Saria wake, 37106–37108.

Crab apple (*Malus* sp.), 37486.
  Hai t'ang, 37486.
  Siberian. See *Malus baccata* and *M. prunifolia*.

Crab-eye (*Phaseolus calcaratus*), 36988.

Crataegus alnifolia. See *Sorbus alnifolia*.
  oxyacantha, 37641.
  pinnatifida, 37127.

Crotalaria anagyroides, 37389.
  mesopontica, 37011.
  quinquefolia, 37065.
  retusa, 36969.

Cucumis melo, 37624.

Cucurbita pepo, 37132, 37133.

Cudrania javanensis, 36986, 37015, 37016.

Cupressus sp., 37383.

Currant, mountain, 37621.
Cydonia cathayensis. See *Chaenomeles lagenaria cathayensis.*
  oblonga, 37614.
  × *veitchii*, 37606.
Cynodon dactylon. See *Capriola dactylon.*
Cypress (*Cupressus* sp.), 37383.

Dam (*Sesamum orientale*), 37605.
Dariya amariya (*Vigna sinensis*), 37104.
Dasheen (*Colocasia esculenta*):
  (Dutch Guiana), 36955–36958.
  (Trinidad), 37509–37516.
  See also Taro.
Date (*Phoenix dactylifera*), 37060.
  (Egypt), 37060.
  Saidy, 37060.
  Wahi, 37060.
Dendé palm (*Elaeis guineensis*), 36973.
Dendrocalamus strictus, 37223.
Desmodium gyroides. See *Meibomia gyroides.*
Dimorphotheca spectabilis, 37218.
Diospyros kaki, 37168–37213, 37465–37473, 37525–37539, 37543.
  lotus, 37380, 37540, 37627.
Dolichos bean (*Vigna cylindrica*), 37564.
  long-podded (*Vigna sesquipedalis*), 37505.
Dolichos lablab, 37081.
Dower (*Holcus sorghum*), 37503.
Duku (*Lansium domesticum*), 37501.
Durian (*Durio zibethinus*), 37103.
Durio zibethinus, 37103.

Echium perezii, 37100.
  pininana, 37101.
  wildpretii, 37102.
Eesun sze ssu (*Diospyros kaki*), 37527.
Elaeis guineensis, 36973.
Eleusine coracana, 37604.
Erythrina sp., 37139.
Euchlaena mexicana, 37625.
Eugenia sp., 37385.
  brasiliensis. See *Eugenia dombeyi.*
  dombeyi, 36968.
  edulis. See *Myrciaria edulis.*
  jambos. See *Caryophyllus jambos.*
Eugenia sp.—Continued.
  klotzschiana, 37392, 37492.
  luschnathiana, 37017.
  uniflora, 37026.
Euonymus alatus, 37479.
  radicans acutus, 37541, 37546.
Fagopyrum esculentum. See *Fagopyrum vulgare.*
  vulgare, 37166.
Fara fara (*Holcus sorghum*), 37115.
Farin wake (*Vigna sinensis*), 37110.
Feijão (*Phaseolus vulgaris*), 36970.
  fradinho (*Vigna sinensis*), 37022.
  preto (*Phaseolus vulgaris*), 37023.
Fên niu hsin shih tzŭ (*Diospyros kaki*), 37525.
Fên shih tzŭ (*Diospyros kaki*), 37526.
Feroniella oblata, 36995.
Ficus macrophylla, 37140.
  rubiginosa, 37141.
Fig, Moreton Bay (*Ficus macrophylla*), 37140.
  narrow-leaved (*Ficus rubiginosa*), 37141.
  Port Jackson (*Ficus rubiginosa*), 37141.
Fire tree (*Stenocarpus sinuatus*), 37144.
Flame tree (*Brachychiton acerifolium*), 37136.
Flax (*Linum usitatissimum*):
  (Abyssinia), 37085–37089.
  (British India), 37214.
  (Egypt), 36937, 36938.
  talba, 37085–37089.
Forsythia suspensa, 37004, 37477.
Fortunella hindsii, 36985.
Fructa de sabão (undetermined), 37020.
Furcraea elegans, 37128.

Garcinia sp., 36977, 37092.
  multiflora, 37131.
  vidalii, 37381.
Gau (*Gynopogon bracteolosa*), 37507.
Glycine hispida. See *Soja max.*
Gold-blossom tree (*Barklya syringifolia*), 37134.
Golden bell (*Forsythia suspensa*), 37004, 37477.
Gooseberry (*Ribes speciosum*), 37622.
Gordura grass (*Melinis minutiflora*), 37388.

- *Gossypium barbadense*, 37125.
- Grapefruit (*Citrus grandis*), 36944–36946.
- Grass, Bermuda (*Capriola dactylon*), 36953, 37508.
  - gordura (*Melinis minutiflora*), 37388.
  - Guinea (*Panicum maximum*), 37030.
  - Johnson (*Holcus halepensis*), 36981, 37001.
  - lovilovi (*Chrysopogon aciculatus*), 37567.
- Gravatá (*Bromelia* sp.), 36967.
- Grumichama (*Eugenia dombeyi*), 36968.
- Grumixama (*Eugenia dombeyi*), 36968.
- Guabiroba (*Campomanesia guaviroba*), 37491.
- Guadiloba (*Campomanesia obversa*), 37064.
- *Guadua angustifolia*. See *Bambos guadua*.
- Guinea corn (*Holcus sorghum*), 37503.
  - grass (*Panicum maximum*), 37030.
  - oil palm (*Elaeis guineensis*), 36973.
- Gurounsh (*Phaseolus calcaratus*), 36988.
- Gurush (*Phaseolus calcaratus*), 36988.
- *Gynopogon bracteolosa*, 37507.

- Hai t'ang (*Malus* sp.), 37486.
- Hawthorn (*Crataegus oxyacantha*), 37641.
  - (*Cratoegus pinnatifida*), 37127.
- *Hibiscus sabdariffa*, 37012.
- *Holcus halepensis*, 36981, 37001.
  - *sorghum*, 36960–36963, 36979, 36980, 38982, 36998–37000, 37082, 37083, 37114–37116, 37377–37379, 37503, 37549–37553.
- Honeysuckle (*Lonicera* spp.), 37545, 37643, 37644.
- *Hordeum vulgare*, 36939, 37031, 37156.
- Huang shou tan (*Forsythia suspensa*), 37004.
- Huang tou (*Soja max*), 37077.
- Hung shih tzŭ (*Diospyros kaki*), 37530.
- Hung yün tou (*Phaseolus vulgaris*), 37079.
- Hunum marini (*Vigna sinensis*), 37105.
- Huo ching shih tzŭ (*Diospyros kaki*), 37473.
- Huo kuan shih tzŭ (*Diospyros kaki*), 37539.
- Hu t'i la mei (*Meratia praecox*), 37522.

- I shêng shih tzŭ (*Diospyros kaki*), 37527.
- Illawarra flame tree (*Brachychiton acerifolium*), 37136.
- Imbu (*Spondias tuberosa*), 37018.
- Indigo (*Indigofera tinctoria*), 37067.
  - (*Indigofera suffruticosa*), 37391.
- *Indigofera anil*. See *Indigofera suffruticosa*.
  - *hirsuta*, 37068.
  - *suffruticosa*, 37391.
  - *tinctoria*, 37067.
- *Ischaemum binatum*, 37014.
- Itumbi (*Holcus sorghum*), 36962.

- Jaboticaba (*Myrciaria cauliflora*), 37034.
  - (*Myrciaria jaboticaba*), 37090.
- Jambo (*Caryophyllus jambos*), 36978.
- Jara (*Annona cherimola*), 37117.
- Job's-tears. See *Coix lacryma-jobi*.
- Johnson grass (*Holcus halepensis*), 36981, 37001.
  - (France), 36981.
  - (Germany), 37001.
- *Juglans regia*, 37225.
- Jujube (*Ziziphus jujuba*):
  - K'ang tsao, 37070.
  - Lung chao tz'ŭ shu, 37489.
  - So tsao, 37484.
  - Ta hung tsao, 37476.
  - Ta tsao, 37475.
  - Ya hu tsao, 37069.

- Kaki. See *Diospyros kaki*.
- Kambool (*Soja max*), 37037.
- K'ang tsao (*Ziziphus jujuba*), 37070.
- Kaoliang (*Holcus sorghum*), 37082, 37083.
  - Blackhull, 37083.
  - Brown, 37082.
  - Stepgrandma White, 37083.
- Kaura (*Holcus sorghum*), 37114.
- Kembuti bhatta (*Oryza sativa*), 37130.
- Kerguelen cabbage (*Pringlea antiscorbutica*), 37554.
- Khei (*Soja max*), 37574.
- Kiri zidari rice (*Bambos* sp.), 37129.

- Ko-yi (*Soja max*), 37573.
- Kou pu ch'ih shih tzŭ (*Diospyros kaki*), 37532.
- Kou ying la mei (*Meratia praecox*), 37524.
- Kua kan shih tzŭ (*Diospyros kaki*), 37533.
- Kuan tung ching (*Dolichos lablab*), 37081.
- K'uei li tzŭ (*Castanea mollissima*), 37548.
- Kumquat, Hongkong (*Fortunella hindsii*), 36985.
- Kuo kai shih tzŭ (*Diospyros kaki*), 37469.

- Labelebele (*Pennisetum glaucum*), 36959.
- Lacebark tree (*Brachychiton acerifolium*), 37136.
- Lagaali (*Aglaia edulis*), 37506.
- *Lansium domesticum*, 37501.
- Laranja da terra (*Citrus aurantium*), 36971, 36975.
  - de umbigo (*Citrus sinensis*). See under 36971.
  - lima (*Citrus* spp.), 36949–36951.
  - selecta (*Citrus sinensis*), 36947.
  - tanja (*Citrus grandis*), 36946.
- *Laurocerasus ilicifolia*, 37631.
  - *lusitanica*, 37615.
- Lazy-man pea (*Phaseolus calcaratus*), 36988.
- Libas (*Garcinia vidalii*), 37381.
- Lien ch'iao (*Forsythia suspensa*), 37477.
- Lien hsin shih tzŭ (*Diospyros kaki*), 37471.
- Lilac (*Syringa* sp.), 37544.
- Lima doce (*Citrus* sp.). See under 36949.
- Limão do matto (*Rheedia edulis*), 37384.
- Lime (*Citrus* sp.), 37084.
  - (India), 37084.
  - Rungpur, 37084.
  - sweet. See under 36949.
  - Sylhet, 37084.
- Lime orange (*Citrus* spp.), 36949–36951.
- *Linum usitatissimum*, 36937, 36938, 37085–37089, 37214.
- Little devil bean (*Phaseolus calcaratus*), 36988.
- Liu t'ung mu (*Abelia triflora*), 37478.
- Loa (*Bixa orellana*), 37505.
- Lo han chu chih (*Bambos* sp.), 37556.
- *Lonicera* sp., 37545.
  - *chrysantha*, 37643.
  - *ruprechtiana*, 37644.
- Lovilovi grass (*Chrysopogon aciculatus*), 37567.
- Lü tou (*Phaseolus aureus*), 37078.
- Lukeriga (*Holcus sorghum*), 36962.
- Lung chao tz'ŭ shu (*Ziziphus jujuba*), 37489.
- *Lychnis coronata*, 37462.

- Macaúba palm (*Acrocomia sclerocarpa*), 37382.
- *Magnolia denudata*, 37485.
  - *yulan*. See *Magnolia denudata*.
- Magugu (undetermined), 37504.
- Mahango (*Pennisetum glaucum*), 36959.
- Mahorka (*Nicotiana rustica*), 36964.
- *Malus* sp., 37486.
  - *baccata*, 37008, 37584, 37586, 37616.
  - *cerasifera*, 37585.
  - *fusca*, 37592.
  - *prunifolia*, 37590, 37617.
  - *prunifolia rinki*, 37591.
- Mambi bean (*Phaseolus calcaratus*), 36988.
- Man êrh shih tzŭ (*Diospyros kaki*), 37538.
- Man t'ien hung shih tzŭ (*Diospyros kaki*), 37543.
- Manasiri (*Sesamum orientale*), 37605.
- *Mangifera indica*, 36965.
- Mango (*Mangifera indica*), 36965.
- Mangostão da Africa (*Garcinia* sp.), 36977.
- Mangosteen, African (*Garcinia* sp.), 36977.
- Marak (*Betula fruticosa*), 37007.
- Mauritius bean (*Stizolobium aterrimum*), 36989.
- Mausa (*Pennisetum glaucum*), 36959.
- Mavela amassen (*Holcus sorghum*), 36962.
- Mawele (*Holcus sorghum*), 36962.
- *Medicago falcata* × *sativa*, 37639.
- Medlar (*Mespilus germanica*), 37618.
- *Meibomia gyroides*, 37502.
- Mei chu chih (*Phyllostachys nigra*), 37555.
- *Melinis minutiflora*, 37388.

Meratia praecox, 37487, 37488, 37522–37524.
Mespilus germanica, 37618.
Mien tan shih tzŭ (*Diospyros kaki*), 37529.
Millet, sugar (*Holcus sorghum*), 37377.
Moreton Bay chestnut (*Castanospermum australe*), 37138.
  Bay fig (*Ficus macrophylla*), 37140.
Mountain currant (*Ribes alpinum*), 37621.
  evergreen cherry (*Laurocerasus ilicifolia*), 37631.
Mulata gorda bean (*Phaseolus vulgaris*), 37024.
Mulatinha (*Phaseolus vulgaris*), 37220.
Mung bean. See *Phaseolus aureus*.
Murchurkee (*Nicotiana rustica*), 36964.
Murua (*Holcus sorghum*), 36961.
Musa sp., 36984, 37032.
Muskmelon (*Cucumis melo*), 37624.
  Valencia, 37624.
Mu-tsa (*Phaseolus calcaratus*), 36988.
Myrcia jaboticaba. See *Myrciaria jaboticaba*.
Myrciaria cauliflora, 37034.
  edulis, 37094.
  jaboticaba, 37090.

Naranjilla (*Solanum quitoense*), 37566.
Navel orange. See *Citrus sinensis*.
New Zealand flax (*Phormium tenax*), 37142, 37143.
Niant (*Pennisetum glaucum*), 36959.
Nicotiana rustica, 36964.
Nicuri palm (*Cocos coronata*), 36972; *Cocos schizophylla*, 37021.
Niu hsin shih tzŭ (*Diospyros kaki*), 37535.
Njaderi (*Eleusine coracana*), 37604.
Nogti (*Phaseolus aureus*), 37576.

Oat (*Avena sterilis*), 37405.
Ocotea sp., 37093.
  regeliana, 37091.
Oil palm, Guinea (*Elaeis guineensis*), 36973.
Ophiopogon sp., 37557.
Opuntia spp., 36954, 37025.
Orange (*Citrus* spp.), 36975, 37623.
  (Brazil), 36942, 36947, 36948.
  Jaffa, 37461.
  Johore, 37623.
  lime (*Citrus* spp.), 36949–36951.
  navel, 36942, 36947, 36948.
  sour (*Citrus aurantium*), 36971, 36975.
  sweet (*Citrus sinensis*), 36942, 36947, 36948, 37461.
Oryza sativa, 37130, 37215, 37517–37521, 37632–37637.
Ou hsin shih tzŭ (*Diospyros kaki*), 37467.
Ovambokorn, red (*Holcus sorghum*), 36963.

P'a tou (*Vigna sinensis*), 37076.
Pai hsiang hsing êrh (*Prunus armeniaca*), 37072.
Pai yang shu (*Populus* sp.), 37482.
Pai yü lan (*Magnolia denudata*), 37485.
Pai yü wan la mei (*Meratia praecox*), 37488.
Palm, Alicuri (*Cocos coronata*), 36972.
  (Brazil), 36972, 36973, 37021, 37095, 37382.
  Dendé (*Elaeis guineensis*), 36973.
  Guinea oil (*Elaeis guineensis*), 36973.
  Macauba, 37382.
  Nicuri (*Cocos coronata*), 36972.
    (*Cocos schizophylla*), 37021.
  (*Pinanga insignis*), 37607.
  sucum, 37095.
  tucum, 37095.
Pan chin li (*Pyrus* sp.), 37071.
Panicum maximum, 37030.
Papa gruesa (*Solanum tuberosum*), 36941.
Papa montañera (*Solanum tuberosum*), 36997.
Papaya (*Carica papaya*):
  (Africa), 37118.
  (Costa Rica), 37122–37124.
  Dapitan, 36987.
  (Philippine Islands), 36987, 37577.
  seedless, 37577.
  Singapore, 36987.
Pau mala (*Phaseolus calcaratus*), 36988.

- Pea (*Pisum sativum*), 37376.
  - Cherry (*Phaseolus angularis*), 37395.
  - Crab-eye (*Phaseolus calcaratus*), 36988.
  - Lazy-man (*Phaseolus calcaratus*), 36988.
- Pea tree, Siberian (*Caragana arborescens*), 36991.
- Peach (*Amygdalus persica*), 37613.
- Pear (*Pyrus* sp.), 37071.
  - (China), 37071, 37500.
  - half catty, 37071.
  - pan chin li, 37071.
  - *Pyrus calleryana*, 37500.
  - willow-leaved (*Pyrus salicifolia*), 37620.
- Pearl millet (*Pennisetum glaucum*), 36959, 36983.
  - (France), 36983.
  - (German Southwest Africa), 36959.
  - Labelebele, 36959.
  - Mahango, 36959.
  - Mausa, 36959.
  - Niant, 36959.
- *Pennisetum glaucum*, 36959, 36983.
  - *typhoideum*. See *Pennisetum glaucum*.
- Pera do campo (*Eugenia klotzschiana*), 37392, 37492.
- *Pereskia* sp., 36952.
- *Persea americana*, 37035, 37059, 37061.
  - *gratissima*. See *Persea americana*.
- Persimmon (*Diospyros kaki*), 37163–37213, 37465–37473, 37525–37539, 37543.
  - Aizu-mishirazu, 37201.
  - Akadansu, 37195.
  - Ama-hyakume, 37169.
  - Chien ting shih tzŭ, 37536.
  - Ch'in shih tzŭ, 37528.
  - (China), 37543, 37465–37473, 37525–37540.
  - Ching mien shih tzŭ, 37472.
  - Ch'iu chien ting shih tzŭ, 37531.
  - Chu kuan shih tzŭ, 37468.
  - Chung t'ai shih tzŭ, 37534.
  - (*Diospyros lotus*), 37380, 37627.
  - Dojo-hachiya, 37199.
  - Fên niu hsiu tzŭ, 37525.

Persimmon—Continued.

  - Fên shih tzŭ, 37526.
  - Fuji, 37202.
  - Fuyŭ, 37170.
  - Gi-ombo, 37210.
  - Hana-gosho, 37172.
  - Handai, 37188.
  - Hira-gaki, 37203.
  - Hira-tanenashi, 37207.
  - Hung shih tzŭ, 37530.
  - Huo ching, 37473.
  - Huo kuan shih tzŭ, 37539.
  - Inayama, 37211.
  - I shêng shih tzŭ, 37527.
  - (Japan), 37168–37213.
  - Jiro, 37174.
  - Kanro, 37187.
  - Kawa-bata, 37192.
  - Khurma (*Diospyros lotus*), 37380.
  - Kiara, 37178.
  - Koshu-hyakume, 37191.
  - Kou pu ch'ih shih tzŭ, 37532.
  - Kua kan shih tzŭ, 37533.
  - Kuo kai shih tzŭ, 37469.
  - Lien hsin shih tzŭ, 37471.
  - Man êrh shih tzŭ, 37538.
  - Man t'ien hung shih tzŭ, 37543.
  - Meotogaki, 37208.
  - Mien tan shih tzŭ, 37529.
  - Mizu-shima, 37173.
  - Monbei, 37200.
  - Niu hsin shih tzŭ, 37535.
  - Obi-shi, 37212.
  - Ogosho, 37186.
  - Oku-gosho, 37176.
  - Omidansu, 37197.
  - Onihira, 37213.
  - Oranda-gosho, 37175.
  - Otera, 37177.
  - Ou hsin shih tzŭ, 37467.
  - Oyotsu-mizo, 37192.
  - (Russia), 37380.
  - Saijō, 37190.
  - Sekaiichi, 37183.
  - Shao shih tzŭ, 37537.
  - Shiroto-damashi, 37189.
  - Shozayemon, 37198.
  - Shui ching shih tzŭ, 37470.
  - Ssŭ fang shih tzŭ, 37465.
  - Ta hung pao shih tzŭ, 37466.
  - Takura, 37194.
  - Tamopan. See under 37534.
  - Tanenashi, 37205.

- Persimmon—Continued.
  - Tenjin-gosho, 37168.
  - Toyo-oka, 37185.
  - Tsukiyo, 37184.
  - Yamagaki, 37196.
  - Yashima, 37181.
  - Yedoichi, 37171, 37182.
  - Ye-gosho, 37180.
  - Yeh shih tzŭ (*Diospyros lotus*), 37540.
  - Yemon, 37208.
  - Yokono, 37209.
  - Yotsu-mizo, 37204.
  - Zenji-maru, 37179.
- *Phaseolus* sp., 37010.
  - *angularis*, 37002, 37003, 37038, 37039, 37057, 37058, 37357–37366, 37395, 37575.
  - *aureus*, 37056, 37078, 37367, 37368, 37576.
  - *bertonii*, 37010.
  - *calcaratus*, 36988.
  - *caracalla*, 37010.
  - *lunatus*, 37112, 37113.
  - *vulgaris*, 36970, 37023, 37024, 37079, 37220, 37369–37374.
- *Phleum pratense*, 37162.
- *Phoenix dactylifera*, 37060.
- *Phormium tenax*, 37142, 37143.
- *Phyllostachys nigra*. See *Phyllostachys puberula nigra*.
  - *puberula nigra*, 37555.
- Pilipiliula (*Chrysopogon aciculatus*), 37567.
- *Pinanga insignis*, 37607.
- Pink, wild (*Lychnis coronata*), 37462.
- *Pisum sativum*, 37376.
- Pitanga (*Eugenia uniflora*), 37026.
- Pitomba (*Eugenia luschnathiana*), 37017.
- *Polygonum sachalinense*, 37626.
- Pomegranate (*Punica granatum*), 37029.
- *Populus* sp., 37482.
  - *tomentosa*, 37542.
- Poplar (*Populus* sp.), 37482, 37542.
  - (China), 37542.
  - Pai yang shu, 37482.
  - Ta pai yang shu, 37542.
- Port Jackson fig (*Ficus rubiginosa*), 37141.
- Potato (*Solanum polyadenium*), 36992.
  - (*Solanum tuberosum*), 36997.
- Prickly-pear, *Opuntia* spp., 36954, 37025.
- *Pringlea antiscorbutica*, 37554.
- *Prunus* sp., 37628.
  - *armeniaca*, 37072, 37073, 37474.
  - *cerasifera divaricata*, 37463, 37464, 37630.
  - *domestica*, 37629.
    - *armenioides*, 37629.
    - *insititia*, 37619.
  - *grayana*, 37645.
  - *ilicifolia*. See *Laurocerasus ilicifolia*.
  - *insititia*. See *Prunus domestica insititia*.
  - *lusitanica*. See *Laurocerasus lusitanica*.
  - *maackii*, 37646.
  - *persica*. See *Amygdalus persica*.
  - *pedunculata*. See *Amygdalus pedunculata*.
  - *prostrata*, 37642.
  - *sibirica*, 37006.
- *Punica granatum*, 37029.
- Pyronia (× *Cydonia veitchii*), 37606.
- *Pyrus* sp., 37071.
  - *baccata*. See *Malus baccata*.
  - *calleryana*, 37500.
  - *canescens*, 37587.
  - *cydonia*. See *Cydonia oblonga*.
  - *melanocarpa*. See *Aronia melanocarpa*.
  - *pinnatifida*. See *Sorbus hybrida*.
  - *prunifolia*. See *Malus prunifolia*.
  - *ringo*. See *Malus prunifolia rinki*.
  - *rivularis*. See *Malus fusca*.
  - *rotundifolia*. See *Sorbus latifolia*.
  - *salicifolia*, 37620.

- Quince (*Chaenomeles lagenaria cathayensis*), 37558.
  - bastard (*Sorbus alpina*), 37593.
  - (*Cydonia oblonga*), 37614.

- Ragi (*Eleusine coracana*), 37604.
- *Rheedia edulis*, 37384.
- *Ribes alpinum*, 37621.
  - *speciosum*, 37622.
- Rice (*Oryza sativa*):
  - Atap, 37632–37637.
  - Byat pyu, 37636.
  - Highland, 37215.
  - (India), 37130, 37632–37637.

Rice—Continued.
  (Italy), 37517-37521.
  Kembuti Bhatta, 37130.
  Kiri bidari (*Bambos* sp.), 37129.
  Kyaung byu, 37637.
  Mya wa, 37635.
  Nga cheik, 37634.
  Ngaseingyi, 37632.
  (Peru), 37215.
  Rangoon, 37632-37637.
  Rangooni Chal, 37632-37637.
  Sancino, 37521.
  Sekiyama, 37518.
  Taungteik pan, 37633.
Rosa sp., 37490.
Rose (*Rosa* sp.), 37490.
  Yüeh chi mu tan, 37490.
Rose-apple (*Caryophyllus jambos*), 36978.
Roselle (*Hibiscus sabdariffa*), 37012.
Rubus sp., 37481.
Rye (*Secale cereale*), 37155, 37568, 37569.
  (Siberia), 37155, 37568, 37569.

Sacaline (*Polygonum sachalinense*), 37626.
Saidy date (*Phoenix dactylifera*), 37060.
Saka-baba-sata (*Vigna sinensis*), 37109.
Sam (*Sesamum orientale*), 37605.
Schizonotus sorbifolius, 37153.
Secale cereale, 37155, 37568, 37569.
Secamone wightiana, 37222.
Service tree, bastard (*Sorbus hybrida*), 37595.
Sesame (*Sesamum orientale*), 37605.
Sesamum indicum. See *Sesamum orientale*.
  orientale, 37605.
Shaddock (*Citrus grandis*), 36944-36946.
  (Brazil), 36944-36946.
  pink-fleshed, 36945.
Shan ch'un liu (*Tamarix* sp.), 37483.
Shao shih tzŭ (*Diospyros kaki*), 37537.
Shih tzŭ. See *Diospyros kaki*.
Shui ching shih tzŭ (*Diospyros kaki*), 37470.
Siberian crab apple. See *Malus baccata* and *M. prunifolia*.
Sidi (*Sesamum orientale*), 37605.
Sigge (*Eleusine coracana*), 37604.
Sita-mas (*Phaseolus calcaratus*), 36988.
So tsao (*Ziziphus jujuba*), 37484.
Soap fruit (undetermined), 37020.
Soja max, 37036, 37037, 37040-37055, 37062, 37063, 37074, 37075, 37077, 37080, 37228-37356, 37396-37404, 37563, 37570-37574.
Solanum polyadenium, 36992.
  quitoense, 37566.
  tuberosum, 36941, 36997.
Sorbus alnifolia, 37582.
  × *alpina*, 37593.
  aria salicifolia, 37583.
  × *hostii*, 37588.
  hybrida, 37595.
  × *latifolia*, 37589.
Sorghum (*Holcus sorghum*):
  (Africa), 37114-37116.
  Amawele, 36962.
  (China), 37082-37083.
  Fara fara, 37115.
  (France), 36979, 36980, 36982.
  (German East Africa), 37549-37553.
  (German Southwest Africa), 36960-36963.
  (Germany), 36998-37000.
  halepensis. See *Holcus halepensis*.
  Holongo waza, 37551.
  (Italy), 37377-37379.
  Itumbi, 36962.
  Kalundi-1, 37549.
  Kalundi-2, 37552.
  Kaura, 37114.
  Lukeriga, 36962.
  M., 37553.
  Mavela amassen, 36962.
  Mawele, 36962.
  Murua, 36961.
  (Nigeria), 37503.
  Ovambokorn, red, 36963.
  Susue, 36960.
  Utembe, 37550.
  vulgare. See *Holcus sorghum*.
Soy bean (*Soja max*):
  Barbarian, 37297.
    Blue, 37286.
  Bird's Egg, 37319, 37320.
  Black, 37302, 37305, 37307-37309, 37311.
  Black Chestnut, 37304, 37401.

- Soy bean—Continued.
    - Large, 37306.
    - Rat's Eye, 37310, 37317.
    - Rich, 37303.
    - Striped, 37321.
    - Vegetable, 37314.
  - Black-Eyed, 37399.
  - Black-Green, large, 37403.
  - Blue, 37280, 37282–37285, 37289, 37290, 37292, 37293, 37295, 37300, 37301.
    - Clear, 37296.
    - Small, 37294.
  - Bluish, 37281.
  - Broad River, 37230.
  - Burnt, 37254.
  - Camphor, 37291.
  - Castor-Oil, 37402.
  - Cha tou, 37075.
  - Chestnut, 37235.
  - (China), 37062, 37063, 37074, 37075, 37077, 37080.
  - Chinese, 37570–37572.
  - Ching tou, 37080.
  - Chodan, 37239.
  - (Chosen), 37036, 37037, 37040–37055, 37228–37356, 37396–39404, 37563.
  - Clasped Hands, 37287.
  - Confucian Scholar, 37318.
  - Date, 37267, 37273, 37396.
  - Date, Large, 37263, 37268.
  - Food, 37242, 37322.
  - Golden, 37261.
  - Great Date, 37271.
  - Green, Big, 37398.
  - Green, Clear, 37288.
  - Huang tou, 37077.
  - Indigo, 37266.
  - Kambool, 37037.
  - Khel, 37574.
  - Ko-yi, 37573.
  - Moon-tooth, 37074.
  - Pheasant-leg, 37404.
  - Purple, 37323.
  - Rat's Eye, 37245, 37279, 37312, 37313, 37315, 37316, 37400.
  - Red, 37264, 37272, 37274–37276.
    - Rat, 37277.
    - Rice, 37278.
    - Striped, 37324.
  - Rengyo Egg, 37237.
  - Rich and Virtuous, 37255.
- Soy bean—Continued.
  - (Siberia), 37570–37574.
  - Six Months, 37228, 37269.
  - Soja, 37249, 37258.
  - Swallow, 37270.
  - Tea, 37265.
  - Thousand Tied, 37325.
  - White, 37231, 37234, 37238, 37240, 37241, 37246, 37248, 37251, 37253, 37256, 37257, 37260.
    - Chestnut, 37397.
    - Early, 37257.
    - Horse, 37250.
    - King, 37252.
    - Large-Grained, 27246.
    - Manchurian, 37563.
    - Rat's Eye, 37247, 37259, 37262.
    - Small, 37243.
    - Stalk, 37233.
    - Vegetable, 37244.
  - Widower, 37229.
  - Yellow, 37236.
    - Early, 37232.
    - Powder, 37298.
    - Roll, 37299.
  - Yüeh ya tou, 37074.
  - Yulgochi, 37036.
- *Spiraea sorbifolia.* See *Schizonotus sorbifolius.*
  - *veitchi*, 37610.
  - *wilsoni*, 37611.
- *Spodiopogon angustifolius.* See *Ischaemum binatum.*
- *Spondias tuberosa*, 37018.
- Spud, claw (*Amorphophallus* sp.), 37394.
- Squash (*Cucurbita pepo*), 37132, 37133.
  - (Italy), 37132, 37133.
  - Zucchetta nana, 37132, 37133.
- Ssŭ fang shih tzŭ (*Diospyros kaki*), 37465.
- *Stenocarpus sinuatus*, 37144.
- *Sterculia acerifolia.* See *Brachychiton acerifolium.*
- *Stizolobium aterrimum*, 36989.
  - *velutinum* (?), 37066.
- Su hsin la mei (*Meratia praecox*), 37487.
- Sucum (*Bactris caryotaefolia*), 37095.
- Sugar millet (*Holcus sorghum*), 37377.
- Surucucú (*Pereskia* sp.), 36952.
- Susue (*Holcus sorghum*), 36960.

Sutri (*Phaseolus calcaratus*), 36988.
Syringa sp., 37544.

Ta hsing (*Prunus armeniaca*), 37474.
Ta hung pao shih tzŭ (*Diospyros kaki*), 37466.
Ta hung tsao (*Ziziphus jujuba*), 37476.
Ta pai yang shu (*Populus tomentosa*), 37542.
Ta tsao (*Ziziphus jujuba*), 37475.
Takuara (*Bambos guadua*), 37009.
Talauma hodgsoni, 37216.
Talba (*Linum usitatissimum*), 37085–37089.
Tamarisk (*Tamarix* sp.), 37483.
Tamarix sp., 37483.
T'an ch'un (*Viburnum fragrans*), 37005.
Taro (*Colocasia* sp.), 37033.
  banlung, 37393.
  (*Colocasia antiquorum*), 37226.
  (*Colocasia esculenta*), 37393.
  (Syria), 37226.
Taya (*Xanthosoma* spp.), 37098, 37099.
Teosinte (*Euchlaena mexicana*), 37625.
Theobroma cacao, 36974.
Timothy (*Phleum pratense*), 37162.
Tobacco (*Nicotiana rustica*), 36964.
Toxocarpus wightiana. See *Secamone wightiana*.
Trifolium alexandrinum, 36966.
  lupinaster, 37165.
  pratense, 37161, 37406–37460.
Triticum aestivum, 36940, 37154, 37157, 37158, 37160, 37164, 37167, 37601–37603.
  durum, 37159.
  vulgare. See *Triticum aestivum*.
Tsao (*Ziziphus jujuba*):
  K'ang, 37070.
  So, 37484.
  Ta, 37475.
  Ya hu, 37069.
Tsuru adzuki (*Phaseolus calcaratus*), 36988.
Tucum (*Bactris caryotaefolia*), 37095.
Tulip tree (*Stenocarpus sinuatus*), 37144.
Tung ch'ing (*Euonymus radicans acutus*), 37541.
Tung tree (*Aleurites fordii*), 36993.
Tuquerrena (*Solanum tuberosum*), 36941.

Udo (*Aralia cordata*), 37145–37152.
  Kan, 37145.
  Oku red, 37152.
  Oku white, 37148.
  Wase red, 37151.
  Wase white, 37147.
  Yakate red, 37149.
  Yakate white, 37150.
  Yama, 37146.
Umburana (*Amburana claudii*), 37019.
Undetermined, 37020, 37390, 37494, 37504.

Vetch (*Vicia amoena*), 37163.
Viburnum burejaeticum, 37600.
  fragrans, 37005.
  sargenti, 37612.
Vicia amoena, 37163.
Vigna cylindrica, 37564.
  sesquipedalis, 37565.
  sinensis, 36990, 37022, 37076, 37104–37111, 37375.

Walnut (*Juglans regia*), 37225.
Wheat (*Triticum aestivum* and *T. durum*):
  Amerikanka, 37158.
  (Baluchistan), 36940.
  (Holland), 37601–37603.
  Imperial, 37602.
  Millioen, 37603.
  Sandomyrka, 37160.
  (Siberia), 37154, 37157–37160, 37164, 37167.
  Wilhelmina, 37601.
Whitebeam (*Sorbus aria salicifolia*), 37583.
Winter-sweet (*Meratia praecox*), 37487, 37488, 37522–37524.
Wood-oil tree (*Aleurites fordii*), 36993.
  (China), 36993.

Xanthosoma spp., 37098, 37099.

Ya hu tsao (*Ziziphus jujuba*), 37069.
Yama (*Colocasia esculenta*), 37096, 37097.
Yard-long bean (*Vigna sesquipedalis*), 37565.
Yautia (*Colocasia esculenta*), 36955–36958.
Yeh shih tzŭ (*Diospyros lotus*), 37540.

Yiel-yiel (*Stenocarpus sinuatus*), 37144.
Yill-gill (*Stenocarpus sinuatus*), 37144.
Ylang-ylang (*Artabotrys uncinatus*), 37013.
Yüeh chi mu tan (*Rosa* sp.), 37490.
Yüeh ya tou (*Soja max*), 37074.
Yulgochi (*Soja max*), 37036.
Zaria wake (*Vigna sinensis*), 37106–37108.
Zea mays, 36976, 36996, 37219, 37387.
Ziziphus jujuba, 37069, 37070, 37475, 37476, 37484, 37489.
    sativa. See *Ziziphus jujuba*.
Zucchetta (*Cucurbita pepo*), 37132, 37133.

d by Google

Issued September 15, 1917.

U. S. DEPARTMENT OF AGRICULTURE.
BUREAU OF PLANT INDUSTRY.
WILLIAM A. TAYLOR, *Chief of Bureau.*

INVENTORY
OF
SEEDS AND PLANTS IMPORTED
BY THE
OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM APRIL 1 TO JUNE 30, 1914.

(No. 39; Nos. 37647 to 38665.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1917.

INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM APRIL 1 TO JUNE 30, 1914 (NO. 39; NOS. 37647 TO 38665).

INTRODUCTORY STATEMENT.

This inventory, which covers the quarter closing just before the outbreak of the European war, is the largest and contains the most variedly interesting plant material which has come in during any quarter since the Office of Foreign Seed and Plant Introduction was organized in 1898. It describes or lists 1,019 introductions, which is an average of more than 13 for each official working day, and a perusal of the notes will give a good idea of the world-wide operations of this office. It might be interesting to point out that a large amount of the material which is brought in is secured by the operations of an exchange system. During the year, for example, 537 shipments of seeds or plants were sent to official and special private experimenters abroad. The office is becoming, in fact, an international office of seed and plant exchange, which, in many instances, has been of as much value to foreign agriculturists as to the American farmer.

To look over such catalogues as this—of a thousand different plants—is, even to experiment-station men, so much of an undertaking that with the first inventory, published in 1898, the custom was established of mentioning in an introductory statement the more apparently promising and interesting introductions described. There are so many which deserve special mention in this one that the writer has attempted a rough classification of them.

CEREALS.

From the large number of cereals which have come in for trial or have been gathered for the monographic studies of experimenters with these crops, there might be mentioned the introduction of the

---

NOTE.—This bulletin is a record of new or little-known seeds or plants procured mostly from abroad. It is intended for distribution to agricultural experiment stations and the more important private cooperators.

d by Google

noted place at Wellesley, Mass.; molave, *Vitex parviflora* A. Juss. (No. 37705), the forest tree producing one of the best high-grade building timbers in the Philippines; and the sycamore tree of the Bible, *Ficus sycomorus* L. (No. 37729), a long-lived tree much esteemed for its shade, which the Arabs beat to induce it to bear its inferior figs.

FIBER PLANTS.

Two fiber plants were brought from Brazil by the expedition sent there in October, 1913: The caroá, *Neoglaziovia variegata* (Arruda) Mez, from Joazeiro (No. 37794), a species of Bromeliaceæ growing wild in the caatinga lands along the Sao Francisco River and used by the natives for hammock ropes, and the piassava palm, *Attalea funifera* Martius (No. 37868), from Bahia, from the fiber of which most excellent brooms and brushes are made, while from the hard nuts buttons are manufactured.

VEGETABLES.

Of new vegetables there are a number of unusually interesting species. Mr. Wester sends from Manila a new variety of roselle (No. 37698) which matures 20 days earlier than the Victor variety and may be useful as a jelly producer farther north than the Victor can be grown; he directs attention also to a cucumber (No. 37700) introduced into the Philippines from Seharunpur, which has shown resistance to insect attacks and is proving to be one of the best sorts of cucumbers for trial in the Tropics; E. Webb & Sons, of Wordsley, England, have sent in No. 37807, which purports to be a hybrid between thousand-headed kale and kohl-rabi, a vegetable with a thickened stem growing 5 feet high, which is suitable for forage during the winter; Mr. Meyer has secured plants of the Chinese ginger (No. 38180), the candied rhizomes of which are shipped from China to America in great quantities; five varieties (Nos. 38356 to 38360) of the very best starch, table, and feeding potatoes of Polish origin, bred by the Polish plant breeder, Henry Dotowski, have been secured; from New Zealand has been brought in the New Era potato (No. 37947), which, according to J. G. Harris, of Raetihi, has not been affected by potato blight, whereas other varieties on either side of it have been blackened. What resembles closely the yampee yam of Jamaica, *Dioscorea alata* L. (No. 37943), seems to have secured a foothold at Avon Park, Fla., and is doing as well there, according to Mr. J. De Hoff, as the sweet potato. It deserves serious study. From the region about Coban, Guatemala, Mr. O. F. Cook, during his expedition there in 1914, sent seeds of the remarkable pacaya salad palm, *Chamaedorea* sp. (Nos. 38403 and 38404), which produces from four to six large, fleshy, edible inflorescences, beginning with the third or fourth year. These inflorescences, or pacayas, are about the size of ears of sweet corn and when cooked make a delicate salad. It is believed that the species will grow in southern Florida.

FRUITS.

A remarkable number of new fruits and interesting varieties of our staple fruits are represented. Mr. Meyer has added to the list of those already introduced 24 new varieties of oriental persimmon, among these being 11 from Tongjapu (Nos. 37648 to 37658), including an especially valuable variety for drying purposes, which is used to make a dried-fruit product comparable to the dried fig; an improved variety of the *Diospyros lotus* L. (No. 37811) used for stocks in the orchards established on the loess table-lands, where they are subjected to an unusual amount of drought and alkali; five new forms of persimmon from Shensi Province (Nos. 37661 to 37665); the salt-bag persimmon and the honey-pot persimmon (Nos. 37672 and 37678), the latter no larger than a cherry, a prolific bearer, and very showy when loaded with fruit; five varieties from Shantung (Nos. 37948 to 37952), one of which is eaten pickled in brine. A staminate variety (No. 38482) has been found in Bermuda by Mr. Peter Bisset, which ought to be valuable as a pollenizer.

The importance of finding a blight-proof pear has induced Mr. Meyer to continue his search for a better flavored melting Chinese pear, and he has sent in from Shensi, Honan, and Shantung 15 varieties of more or less promise for breeding purposes (Nos. 38240 to 38242, 38262 to 38271, 38277, and 38278); and Rev. Hugh W. White has sent the Tangshan pear (No. 37982), the only pear he has seen that does not have a woody taste, but is sweet and juicy.

An ancient apricot variety (No. 37744), from the Dakhleh Oasis of Egypt, sent in by Prof. S. C. Mason during his expedition to Egypt and the Sudan in search of date varieties, may prove of value in our own desert region, since it is able to withstand an annual temperature of 75° and monthly means as high as 90° F.

The growing importance of the Chinese jujube as a fruit for the Middle West is emphasized by the receipt from Mr. Meyer of 14 large-fruited varieties (Nos. 38243 to 38247, 38249 to 38253, and 38258 to 38261), some with fruits as large as or larger than ordinary hens' eggs, being more like small pears. They can be eaten fresh, stewed with rice, baked, preserved with honey, sugar, etc., and Mr. Meyer reports in the neighborhood of Paihsiangchen an increasing area, which already amounts to several thousand acres, almost entirely given over to jujube culture.

d by Google

EDITORIAL NOTE.

Chinese place and plant names in this inventory have been brought, so far as possible, into accord with the best authorities, the geographic names (except when fixed by decisions of the United States Geographic Board) being given in the form accepted by the Chinese Ministry of Communications Postal Guide. Many of the smaller village names, however, are not listed therein, and in all such cases the location of the village is given with reference to the nearest town mentioned in that work.

The manuscript of this inventory has been prepared by Miss May Riley, the botanical determinations have been made and the notes on geographic distribution compiled by Mr. H. C. Skeels, and the descriptive notes arranged by Mr. S. C. Stuntz, who has also had general supervision of this inventory.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., November 11, 1916.

INVENTORY.

37647 to 37678.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received April 2, 1914. Cuttings of the following, except as noted; quoted notes by Mr. Meyer unless otherwise indicated.

37647. Syringa sp. Oleaceæ. **Lilac.**

"(No. 1107. From Sianfu, Shensi, China. January 30, 1914.) A lilac of slender growth, the flowers of which are said to be of a peculiar deep shade of blue. Though the individual panicles are small, they are produced in such profusion as to make a striking impression. Obtained, like the cuttings listed under the preceding number, from the garden of the English Baptist Mission Hospital at Sianfu."

37648 to 37658. Diospyros kaki L. f. Diospyraceæ. **Persimmon.**

From the village of Tongjapu [Tungchiaochen], near Fuping, Shensi, China. February 3, 1914.

37648. "(No. 1109.) A Chinese dry-meated variety of persimmon, of medium large size and round-oblong shape; color, dark orange-red; contains seeds as a rule. This variety is a good keeper and is also one of the best sorts for drying purposes. Chinese name *Ta kou tzŭ niu hsin shih tzŭ*, meaning 'big-hooked oxheart persimmon.' To obtain a superior quality of dried persimmons, the following method is used with this variety: In early October sound fruits are picked, which, although ripe, must still be hard. Care should be taken to have the peduncle with a piece of twig attached to each fruit. The fruits are peeled by means of a small, special knife, an average worker peeling 2,000 persimmons a day, though an expert brings it up to 3,000. The peeled fruits are tied, by means of their peduncles, to loosely twisted but strong strings, which hang in pairs vertically from horizontal beams put up especially for this work. From 200 to 300 fruits are tied to each string, the work of tying being started by putting a couple of fruits at the bottom first, so as to keep the strings taut, after which the work progresses from top to bottom. The fruits are now left hanging for about 20 days in a warm, sunny situation, where, if possible, the wind can also blow, but where there is freedom from dust. The persimmons should be squeezed and manipulated by hand every four or five days to assist them in drying uniformly and to prevent them from becoming hard in spots. After they have dried thus for about three weeks, they are taken down, strings and all, and a cool place is selected, where they are all put into a big heap and covered with matting. They are now allowed to sweat for 10 days, during which process a dry, white, powdery sugar forms on the surface of the fruits. When sufficiently cured they are hung up again for a couple of

37647 to 37678—Contd. (Quoted notes by Mr. F. N. Meyer.)

meaning 'green persimmon.' It is curious to note that the Chinese say that the higher one can go into the mountains and the nearer to the limit of successful culture. the better flavored the persimmon fruit becomes and the more bountiful the crops, even though the trees are not so large as on the plains and are not as long lived. In this way the persimmon seems to resemble the peach remarkably closely."

37662. "(No. 1130.) A Chinese variety of persimmon, said to be large, of round-oblong shape, color reddish, partly seedless. Supplies a superior product when dried; can also be kept fresh for a long time. Local name *Niu hsin ta shih tzŭ*, meaning 'oxheart big persimmon.'"

37663. "(No. 1131.) A Chinese variety of persimmon, said to be of medium size, barrel shaped, and of yellow color; contains seeds; a good keeper, but not suitable for drying. Local name *Lou hu shih tzŭ*, meaning 'basket-jar persimmon.'"

37664. "(No. 1132.) A Chinese variety of persimmon, of small to medium size, of flattened round shape with top regularly sunken, and of orange color; partly seedless; can be kept fresh throughout the winter when stored in a cool place. Does not dry well. Chinese name *Ching mien shih tzŭ*, meaning 'mirror-face persimmon.' The Chinese around Puchowfu cultivate several hundred acres of this variety, solely for the purpose of distilling a brandy from the fruits, which possesses a slightly bitter flavor. With western methods, no doubt a superior sort of spirits could be made from the persimmon, or even perhaps an alcohol, fit for household uses."

37665. "(No. 1133.) A Chinese variety of persimmon, said to be small, of round shape, color reddish; partly seedless; can be dried and also kept fresh for a long time. Local name *P'ing shih tzŭ*, meaning 'flat persimmon.'"

37666 and 37667. DIOSPYROS KAKI L. f. Diospyraceæ. **Persimmon.**

From the village of Kenyangtchun, near Puchowfu, Shansi, China. February 10, 1914.

37666. "(No. 1134.) A Chinese variety of persimmon, said to be very large and heavy, of flat shape, slightly furrowed; color reddish; seedless; of fine quality either fresh or dried. Local name *Ch'ing shih tzŭ*, meaning 'green persimmon.' This may turn out to be the same as No. 1129 [S. P. I. No. 37661]."

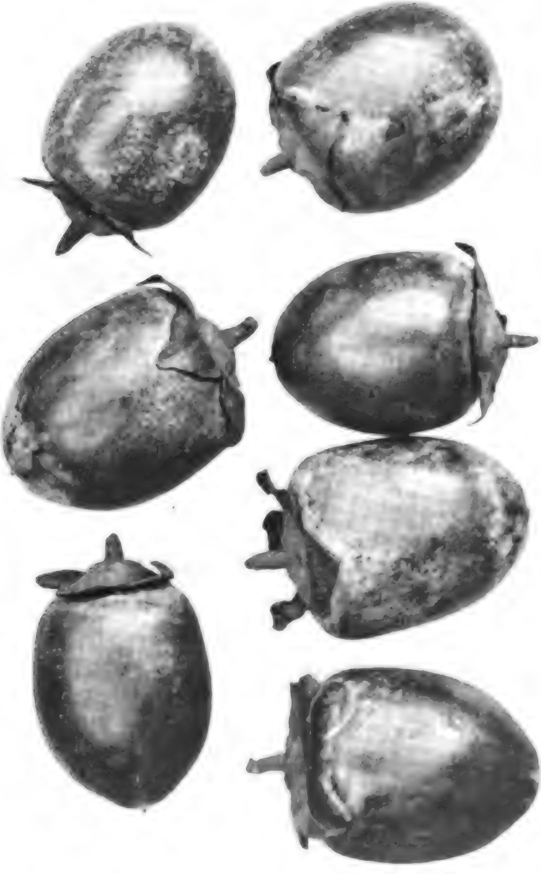
37667. "(No. 1135.) A Chinese variety of persimmon, said to be large, of round shape, with the tops well rounded off; color reddish; contains seeds; can be dried well, supplying a good product. Local name *K'uei shih tzŭ*, meaning 'crown persimmon.'"

37668. ZIZIPHUS JUJUBA Miller. Rhamnaceæ. **Jujube.**
(*Ziziphus sativa* Gaertn.)

"(No. 1139. From near Puchowfu, Shansi, China. February 10, 1914.) A variety of jujube bearing large fruits of round-oblong form, color dark mahogany brown. Good for drying, as well as for eating fresh. Chinese name *Ta tsao*, meaning 'big jujube.'"

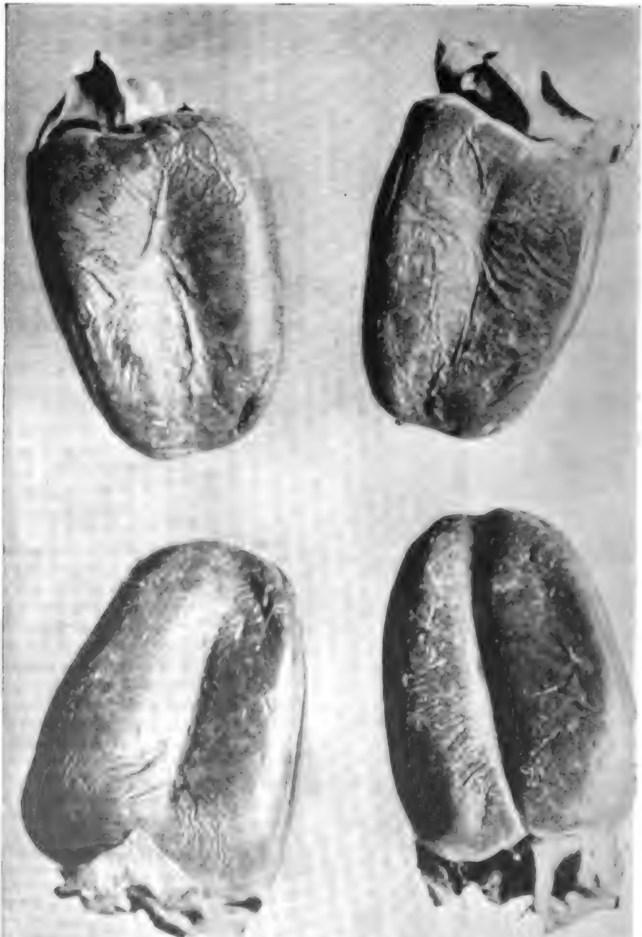
37669 and 37670. DIOSPYROS KAKI L. f. Diospyraceæ. **Persimmon.**

From the village of Wangyuko, Shansi, China. February 15, 1914.



THE "FIRE-POT" PERSIMMON (DIOSPYROS KAKI L. F.), S. P. I. NO. 37657.

A very small variety of persimmon of dark reddish color, resembling an intermediate form between a Persian date and a plum. Locally called *Huo kuan shih tzŭ*, meaning "fire-pot" persimmon. The fruits can be kept fresh almost throughout the entire winter, but the Chinese also eat them slightly fermented by keeping them in water for a few weeks and pouring off the water every few days. Their flavor reminds one of beer, and travelers relish them decidedly. (Photographed at Paihsiangchen, Shansi, China, by Frank N. Meyer, February 14, 1914; natural size; P13044FS.)



THE "SALT-BAG" PERSIMMON (DIOSPYROS KAKI L. F.), S. P. I. NO. 37672.

A very unusual form of oriental persimmon, being square, elongated and tapering, and having four vertical furrows. Of pale, orange-yellow color; seedless; calyx very large and strongly persistent. Can be kept fresh for several months. On account of its attractive and striking form and color this variety may become a great favorite with the American public. Chinese name *Yen pu tai shih tzŭ*, meaning "salt-bag" persimmon. (Photographed at Mienchih, Honan, China, by Frank N. Meyer, February 22, 1914; natural size; P13046FS.)

37647 to 37678—Contd. (Quoted notes by Mr. F. N. Meyer.)

37669. "(No. 1153.) A Chinese variety of persimmon, said to be of small to medium size, of oblong tapering form, with longitudinal furrows; of orange-red color; contains seeds; good only when fresh. Local name *Niu nai shih tzŭ*, meaning 'cow's-nipple persimmon.'"

37670. "(No. 1154.) A Chinese variety of persimmon, said to be much like the preceding, but of somewhat different shape. Bears the same name."

37671. Ulmus sp. Ulmaceæ. **Elm.**

"(No. 1156. From the village of Maochingchen, Shansi, China. February 16, 1914.) A species of elm, occurring in dry loess cliffs and in decomposed slate rocks. In general, of a shrubby nature, but, when not disturbed, growing to a medium-sized tree. The young branches are often provided with broad corky wings, making them appear much thicker than they really are. Of value possibly as a park tree, especially for the drier parts of the United States."

Cuttings and roots.

37672 to 37678. Diospyros kaki L. f. Diospyraceæ. **Persimmon.**

From near Mienchih, Honan, China. February 21, 1914.

37672. "(No. 1157.) A Chinese variety of persimmon, of remarkable form, being of square, oblong shape, tapering toward the apex and having hairy, vertical furrows; of medium size; color, pale orange-yellow; calyx very large; seedless. Can be kept fresh for several months. A really beautiful persimmon, which will probably become very popular with the American people. Local name *Yen pu tai shih tzŭ*, meaning 'salt-bag persimmon.'"

For an illustration of the fruit of the salt-bag persimmon, see Plate II.

37673. "(No. 1158.) A Chinese variety of persimmon, said to be large, of round, flat shape and of red color; partly seedless; can be dried and also kept fresh for a long time. A superior variety. Local name *Yü kuei lun shih tzŭ*, meaning 'globular persimmon.'"

37674. "(No. 1159.) A Chinese variety of persimmon, said to be very large; of round shape, with top running into a point; of red color; partly seedless; can be dried or kept fresh for a long time. Local name *Ta ou hsin shih tzŭ*, meaning 'big pointed-heart persimmon.'"

37675. "(No. 1160.) A variety of Chinese persimmon, said to be medium large; of round shape, although very flat; color, red; partly seedless; good only when fresh. Local name *P'ai p'ai shih tzŭ*, meaning 'pounded persimmon.'"

37676. "(No. 1161.) A variety of Chinese persimmon, said to be large, of square, flat shape, and having two furrows on top, in the form of a Maltese cross; color, red; seedless; can be kept fresh for a long time, but resists drying. Local name *Chia hsien hung shih tzŭ*, meaning 'pick-fresh red persimmon.'"

37677. "(No. 1162.) A Chinese variety of persimmon, said to be of medium size and of oblong, tapering form, with pointed top; color, yellow; seedless. For fresh use only. Local name *Pa yüeh huang shih tzŭ*, meaning 'eighth-moon yellow persimmon.'"

37647 to 37678—Contd. (Quoted notes by Mr. F. N. Meyer.)

37678. "(No. 1163.) A Chinese variety of persimmon, the fruits of which are said to be of the size of large cherries, quite round; of beautiful red color; very sweet, but full of seeds. The trees grow tall and are prolific bearers and very showy when loaded with ripe fruits. Local name *Mi kuan shih tzŭ*, meaning 'honey-pot persimmon.'"

37679 and 37680.

From Sianfu, Shansi, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received at the Plant Introduction Field Station, Chico, Cal., March 18, 1914.

37679. PHYLLOSTACHYS sp. Poaceæ. **Bamboo.**

"(No. 1075. January 13, 1914.) A bamboo growing to 15 to 20 feet in height, having green stems which have but a small air channel in them. Foliage more or less in bunches and quite dense. Of value as an ornamental garden plant for the mild-wintered sections of the United States. Especially valuable as a windbreak. Chinese name *Tung po chu*, meaning 'the bamboo of Tungpo.'" (*Meyer.*)

Plant.

37680. PRUNUS TOMENTOSA Thunberg. Amygdalaceæ. **Bush cherry.**

"(No. 1080. January 13, 1914.) A variety of bush cherry said to bear small white fruits, rare locally. To obtain the best results, the Chinese bud and graft this bush cherry on *Amygdalus davidiana*, usually low in the ground, but often also budded high as 'standard' trees. Chinese name *Pai ying t'ao*, meaning 'white cherry.'" (*Meyer.*)

37681 and 37682. TRIFOLIUM spp. Fabaceæ. Clover.

From Hungary. Presented by Mr. E. Brown, Botanist in Charge of the Seed Laboratory, Bureau of Plant Industry. Received April 15, 1914.

Dr. A. Degen, of the Royal Hungarian Seed-Testing Station at Budapest, Hungary, says of these clovers:

"These species really form a valuable constituent of our pastures and meadows. *Trifolium angulatum* and *T. parviflorum* grow in our lowland plains almost always in company on alkaline heavy clay soils. They are both annual plants, and only in wet years or on wet spots attain a height which allows an abundant hay crop. Under other circumstances they remain dwarf and yield only a short but very valuable hay, and are therefore principally useful as pasturage. They are both very early plants, their chief period of development being from the middle of April to the middle of June.

"These clovers have a cultural value only on alkaline, somewhat humid soils, and are not suitable for others or for culture under different climatic conditions."

37681. TRIFOLIUM ANGULATUM Waldst. and Kit. Fabaceæ.

37682. TRIFOLIUM PARVIFLORUM Ehrh. Fabaceæ.

37683. MALUS SYLVESTRIS Miller. Malaceæ. Apple.

(*Pyrus malus* L.)

From Saloniki Greece. Presented by Rev. P. H. House, president, Thessalonica Agricultural and Industrial Institute. Received April 24, 1914.

"Tetovo apple.

37683—Continued.

"Tetovo is the Bulgarian name of the town of which Kalkundeleu is the Turkish name; *Tetovsky* is the adjective, meaning 'from Tetovo.'" (*P. H. House, letter dated June 5, 1914.*)

37684. SOJA MAX (L.) Piper. Fabaceæ. **Soy bean.**
(*Glycine hispida* Maxim.)

From Peking, China. Received at the State Department in a pouch from Peking, China. Received March 20, 1914.

"This variety is probably the kind asked for in your letter under the name of the 'white-eyed' soy bean. It is known as 'the large white eyebrow bean' among the Chinese where it is grown." (*Source unidentified.*)

37685. CANARIUM OVATUM Engler. Balsameaceæ. **Pili nuts.**

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received March 31, 1914.

"The pili is a forest tree producing an excellent table nut." (*Barrett.*)

37686 to 37691.

From Tiflis, Caucasus. Presented by the director, Botanic Gardens. Received March 30, 1914.

37686 to 38688. PRUNUS spp. Amygdalaceæ.

37686. PRUNUS MICROCARPA Meyer. **Cherry.**

See S. P. I. No. 27303 for previous introduction and description.

37687. PRUNUS PROSTRATA Labill. **Bush cherry.**

See S. P. I. Nos. 28945, 30564, and 37642 for previous introductions and description.

37688. PRUNUS CERASIFERA DIVARICATA (Ledeb.) Schneider.

See S. P. I. No. 37463 for previous introduction and description.

37689. PYRUS NIVALIS ELAEAGRIFOLIA (Pall.) Schneider.

"This wild olive-leaved Pyrus, which is a native of Asia Minor, is a distinct bush or small tree greatly valued for ornamental purposes. The flowers of this beautiful Pyrus, which are white and small, make their appearance in May. The fruit is small, globose in shape, crowned with a very prominent calyx. The leaves are lanceolate, oblong lanceolate, or linear lanceolate, and covered with a whitish, silky pubescence." (*Nicholson, Dictionary of Gardening.*)

37690 and 37691. FRAGARIA spp. Rosaceæ. **Strawberry.**

Introduced for the work of the Office of Pomological and Horticultural Investigations in plant breeding.

37690. FRAGARIA VESCA L.

This common species of Fragaria, which is commonly known as the "wildwood strawberry," is very widely dispersed over the temperate and colder parts of the Northern Hemisphere, extending northward to Lapland and Iceland, southward to the mountains of Java, ascending the Himalayas to 13,000 feet and the Scottish highlands to 7,000 feet. The fruit of this species is borne above the leaves. Sometimes they are as much as 12 inches above the ground. This Fragaria is a stout, tufted plant, dark green in color and less vil-

37686 to 37691—Continued.

lous than either *F. canadensis* or *F. virginiana*. (Adapted from *Mueller, Select Extra-Tropical Plants* and *Britton and Brown, Flora of the Northern States and Canada*.)

37691. Fragaria viridis Duchesne.
(*Fragaria collina* Ehrh.)

"This Fragaria, though not identical with *F. vesca*, resembles it very closely and may be regarded as a mere variety of that European species. Under the name of 'hill strawberry' it occurs in various parts of Europe and is cultivated to some extent in Norway as far north as latitude 67° 56′. The fruit of this species has a somewhat musky odor." (*Mueller, Select Extra-Tropical Plants*.)

37692 to 37695. Colocasia esculenta (L.) Schott. Araceæ.
Taro.

From Waimea, island of Kauai, Hawaii. Collected August 16, 1913, by Mr. R. A. Young, of the Bureau of Plant Industry. Tubers of the following; quoted notes by Mr. Young.

37692. "*Kumu*. A rare variety of the Hawaiian taro, having brilliant red petioles. The name *Kumu* is said to have been given because of the similarity of color to that of the Hawaiian fish of the same name. The variety is unimportant commercially. There are others of this class, varying from this one in certain details."

37693. "*Apuwai ulaula*. A commercial variety of the Hawaiian taro, the leaf blades of which curl upward, forming a cuplike receptacle which holds water. The name *Apuwai* signifies this character of the leaf."

37694. "*Lau loa*. Leaf blade long, petiolar spot purple; laminar sinus closed about one-fourth of distance; petiole dark green below, shaded with maroon, shading into solid dark maroon above the sinus, except on the outer side, where it becomes light green; petiolar sinus wings margined with red."

37695. "*Maka opio*. A commercial variety grown on the island of Kauai. Leaf characters similar to the preceding [S. P. I. No. 37694]."

37696 and 37697. Oryza sativa L. Poaceæ. **Rice.**

From Barcelona, Spain. Presented by Mr. Carl Bailey Hurst, American consul general. Received March 25, 1914.

"The principal region where rice is grown on an extensive scale in this consular district is in the Province of Tarragona, on the right bank of the Ebro River, and in the tract commonly known as 'Amposta.' The total production in the district named amounted to 29,750 long tons during the year 1913, cultivated over an area of 8,500 hectares (21,004 acres), giving an average production of 3½ tons per hectare (2.47 acres). In the Province of Gerona and in the Balearic Islands rice is also cultivated, but not in quantities of commercial importance. Here the production in 1913 was 8.43 and 7.59 tons, respectively.

"The Province of Valencia is the most important rice-growing center in Spain, the average annual crop amounting to some 200,000 long tons. Rice as a popular food enters into the diet of the people to such an extent that the

37696 and 37697—Continued.

home production is not sufficient to meet the demands, and regular imports are made, varying in accordance with the crop obtained.

"The two principal varieties of rice cultivated on the banks of the Ebro River, in this particular consular district, are commonly known as Benlloch and Bomba; the latter variety is also grown in the Balearic Islands.

"Rice sowing in this district takes place about the end of March and the beginning of April. The harvesting season begins in the latter part of August and continues into early September, under normal weather conditions. A considerable portion of the labor is done by peasants from Valencia, who go to the Tarragona rice fields during the sowing and harvesting seasons.

"An authority states that the cost of planting, preparing the land, transportation to warehouse, drying, rent of land, thrashing, wages, and incidental expenses, aggregate $123.10 for an acre producing 50 hectoliters (141.88 bushels) of unshelled rice, which is sold at $2.70 per hectoliter (2.83 bushels), making a gross profit of $135 and a net earning of $11.90 for each 50 hectoliters of rice obtained. For sown rice, which is the method principally resorted to in Spain on account of larger profits, the outlays would approximate $90.90, and the yield would come to 44 hectoliters (124.86 bushels) of unshelled rice. In the latter instance the net profits would, therefore, amount to $27.90." (*Report, February 18, 1914.*)

37696. "*Bomba.*"

"The ruling wholesale prices, which are subject to considerable fluctuation, run at present as follows: Shelled, $11.20 to $13.70 per 100 kilograms; unshelled, $6.50 to $7.20 per 100 kilograms."

37697. "*Benlloch.*"

"The ruling wholesale prices, which are subject to considerable fluctuation, run at present as follows: Shelled, $6.85 to $7.75 per 100 kilograms (220 pounds); unshelled, $4.70 per 100 kilograms."

37698 to 37705.

From Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Division of Horticulture, Lamao Experiment Station. Received March 31, 1914. Quoted notes by Mr. Wester, except as otherwise indicated.

37698. HIBISCUS SABDARIFFA L. Malvaceæ. **Roselle.**

"*Temprano* roselle. A variety that has originated at this station as a sport from *Victor*. The *Temprano* is less vigorous than its progenitor, but has the merit of being 20 days earlier, and if it retains this characteristic in the United States, it should become of considerable value."

37699. BOTOR TETRAGONOLOBA (L.) Kuntze. Fabaceæ. **Winged bean.**
(*Psophocarpus tetragonolobus* DC.)

"*Seguidilla.* Climbing beans with 4-winged pods, which, used as string beans when they are tender, are of excellent quality. They should be of great value in Porto Rico and Panama, but the soil is too poor in Florida. I tried them for two seasons in Miami, Fla., but they were not a success. The seed should be planted in April or May. The plant does best in rich, rather moist, but well-drained land."

37700. CUCUMIS SATIVUS L. Cucurbitaceæ. **Cucumber.**

"*India* cucumber. A cucumber especially adapted to the Tropics, introduced from India.

37698 to 37705—Continued. (Quoted notes by Mr. P. J. Wester.)

"Size large, 22 to 30 cm. long, averaging 26 cm. in circumference; average weight, 850 grams; form oblong, cross section more or less triangulate; color brown, the surface cracking as the cucumber attains maturity, exposing the flesh and giving it the appearance of being reticulated; surface fairly smooth; flesh perhaps somewhat less tender than the standard cucumbers of the Temperate Zone, nevertheless very good; seed abundant.

"The seed of this variety was presented to the Bureau of Agriculture by Mr. A. C. Hartless, superintendent of the Seharunpur Botanical Garden, United Provinces, India, in 1911, and was sown at the end of the rainy season the same year at the Lamao Experiment Station. From the seed saved, another sowing was made in January, 1913, together with a large number of imported varieties of cucurbits of all classes. In this trial the *India* showed itself hardier and superior to all the cucurbits planted in the resistance to insect pests, which practically destroyed the rest, notwithstanding frequent applications of arsenical sprays. The variety is of vigorous growth and a satisfactory yielder and is unquestionably one of the best varieties adapted to local conditions, everything taken into consideration, that has been introduced into the Philippines. A large area has lately been planted to *India* at the Lamao Experiment Station, with a view to producing seeds for general distribution throughout the Philippines another year. India is the original home of the cucumber, and the variety under consideration seems to be an improvement upon the aboriginal form that is especially adapted to tropical conditions. According to Mr. Hartless this cucumber is grown throughout India as a climber, during the rainy season. Notwithstanding its extensive cultivation in India it is a curious fact that this distinct cucumber variety has never received a variety name. Coincident to its wide dissemination throughout the Philippines it has therefore been considered expedient to christen the variety in order to distinguish it from other varieties, and it has been named *India*, in honor of the ancestral home of the cucumber." (*Wester, Philippine Agricultural Review, February, 1914.*)

37701 and 37702. DIOSCOREA spp. Dioscoreaceæ. Yam.

37701. DIOSCOREA PENTAPHYLLA L.

"*Lima-Lima.* An edible yam, though inferior in quality to *Dioscorea alata* and *D. fasciculata.* It should prove a very interesting climbing ornamental in the Tropics and in the subtropical regions of the United States."

37702. DIOSCOREA ACULEATA L.

"*Tugue.* This species occurs in many varieties, from a culinary point of view. These are some of the very best, mealy, with a trace of sugar. From my experience with yams in Miami, Fla., I do not believe that the *Tugue* will succeed there, but it should do very well in Porto Rico and Panama."

37703. SINDORA SUPA Merrill. Cæsalpiniaceæ.

"A tree reaching a height of 25 m, and a diameter of 140 cm. with equally pinnate leaves, coriaceous glabrous leaflets, and densely pubescent calyx lobes which have a few straight or curved spines on the upper half. Branch and branchlets glabrous. Leaves with a glabrous rachis, 6 to 7 cm. long; stipules foliaceous, 1 cm. long, acute, the base rounded

37698 to 37705—Continued. (Quoted notes by Mr. P. J. Wester.)

or auriculate, glabrous or nearly so; leaflets 2 or mostly 3 jugate, the lower pair somewhat smaller than those above, oblong ovate, 5 to 8 cm. long, 2.5 to 4 cm. wide, very coriaceous, entirely glabrous or with few scattered hairs on the under surface, especially on the midrib, the apex rounded, the base acute; nerves numerous, close, faint; petiolules 4 mm. long, acute, pubescent; pedicels 2 mm. long, each with two lanceolate acute pubescent bracteoles 4 mm. long. Calyx tube short, the lobes four, thick, 1 cm. long, densely pubescent within with appressed yellowish hairs, outside densely cinereous puberulous and in the upper half with a few straight or curved pubescent spines about 3 mm. long. Petal one, as long as the calyx lobes, densely appressed pubescent on the margins below. Staminal sheath and filaments hairy. Ovary hirsute. Pod broadly ovate, flattened, rounded at the base, the apical beak very small or nearly obsolete. Valves dehiscent, woody, uniformly armed on the outside with strong straight spines 5 mm. long and more or less densely ferruginous pubescent, becoming quite glabrous in age. Seeds usually four, ovate, hard, black, with an arillate funicle.

"A species related to and previously identified with *Sindora wallichii* Benth. (*S. wallichiana* Benth.), of the Malayan Peninsula, differing from that species in its glabrous leaves and larger pods. Dr. Prain, director of the Royal Botanic Gardens, Kew, has examined some of the material cited above and informs me that this species is not identical with Bentham's *S. wallichiana*. I have accordingly described the Philippine plant as a distinct species, using for the specific name the Tagalog name *supa*, by which this important timber tree is universally known in the Philippines. The timber of this tree is hard and of a yellowish or reddish color, being used in naval and general constructions, and is frequently substituted for the more valuable *ipil* wood (*Intsia bijuga* O. Ktze). From 1900 to 1904 *supa* ranked fourteenth in amount received in the local lumber markets, with a total of 177,189 feet board measure, its average price for sawed lumber being $81.50, United States currency, per 1,000 feet b. m. In addition to being a valuable timber tree, *supa* also yields considerable quantities of a straw-colored or light-yellow, somewhat fragrant oil, which burns with a clear flame. From a report submitted to the Chief of the Forestry Bureau by Mr. Kobbe, forester, the following extracts are taken: 'This oil (*supa*) is secured from the trunk of the living [tree] and not from the fruit or dead wood. The tree is usually hacked with bolo cuts as high as a man can reach, and the oil runs down the channels so formed into some vessel so placed as to catch the product. The oil seems to be a product of the entire woody portion of the tree and does not flow from any particular portion, such as the sapwood only. If an auger hole be bored into the heart of a living tree, as much as 10 liters of oil is frequently obtained from the one hole. When the trees are slashed for gathering the oil, the first that exudes is set on fire, the heat causing a great increase in the flow of oil.' The oil is not widely used. There is a demand for it for the manufacture of paint, especially for use on ships, varnish for sailboats, etc., and as an illuminating oil. Tagalog, *supa*, in Baler; also *manapo*." (*E. D. Merrill, Philippine Journal of Science, vol. 1, suppl., p. 198, 1906.*)

37704. ORMOSIA CALAVENSIS Azaola. Fabaceæ. **Bahai.**

"A timber tree of more or less value in the Philippines."

37698 to 37705—Continued. (Quoted notes by Mr. P. J. Wester.)

"*Bahai* is a medium-sized tree found very scattered in the dipterocarp forest. The wood is red, but is little known on the markets." (*H. N. Whitford, Forests of the Philippines, vol. 2, p. 43, 1911.*)

37705. VITEX PARVIFLORA A. Juss. Verbenaceæ. **Molave.**

"A timber tree of more or less value in the Philippines."

"*Molave* is a tree that in exceptional cases will reach a height of 35 to 38 meters and a diameter up to 200 centimeters, with a bole 16 to 20 m. Usually, however, it is below 30 m. and may form in severe conditions a scraggly tree with a bole 2 m. or less in length. The bole is usually crooked, fluted, and buttressed. It has an open wide-spreading crown. It is found throughout the [Philippine] Islands, especially on the low coastal hills, usually on limestone, but may occur on volcanic rocks. It is intolerant of shade, and partially or wholly deciduous during the dry season. The bark is 8 to 10 mm. in thickness, yellowish brown to gray in color, velvety to the touch, sometimes shedding in small thin flakes; otherwise smooth. The inner bark is light yellow, with darker yellow rings when freshly cut, but rapidly turning brown on exposure. The leaves are opposite, usually trifoliately compound; the leaflets are smooth and vary in size from 5 to 15 cm. long and 2.5 to 7 cm. wide. The sapwood is creamy white; the heartwood a pale yellow, often turning to dull brown on exposure. It has a fine, usually cross grain, with short and brittle fibers, making it easy to work. It is hard and heavy. It turns greenish yellow when treated with an alkali, and has a bitter taste and a slight odor. It stains water a greenish yellow color. *Molave* is one of the best high-grade construction timbers in the islands and is a good substitute for teak. It resists well the action of fungi, teredo, and white ants. The following is an enumeration of its uses: House construction (posts, doors, interior finish, flooring, joists, siding, sills), shipbuilding (knees, cutwater, sternposts), wagon making (axles, wheels, rims, spokes), bridges, cabinetmaking, carabao yokes, cogwheels, docks, salt-water piles, pillars, plows, rice mortars, railroad ties, sugar mills, paving blocks, furniture, balusters and other turned work, hemp presses, sculpture, wooden tools, plane stocks, and tool handles. Practically all the Provinces in the Philippines contain *molave*, though in many it is no longer in commercial quantities." (*H. N. Whitford, Forests of the Philippines, p. 97, 1911.*)

37706 to 37711.

From Copenhagen, Denmark. Presented by the Royal Danish Agricultural Society. Received April 2, 1914. Quoted notes furnished by the society.

37706 and 37707. HORDEUM spp. Poaceæ. **Barley.**

37706. HORDEUM DISTICHON NUTANS Schubl.

"No. 3. *Prentice* barley of Tystofte; 2-ranked barley. Originally from a single plant of the primitive species from England, and grown by Mr. N. P. Nielsen at the Tystofte Experiment Station. The most widely known species of barley in Denmark. A little late The blade does not grow very long. Good quality of grain. Resists well attacks of *Helminthosporium gramineum* and smut (Ustilago). Gives a large crop. Should be sown early and relatively thin. Thrives especially well in good soil."

37706 to 37711—Continued.

37707. Hordeum vulgare L.

"No. 4. Tystofte cruciferous barley (*Tystofte korsbyg*); common barley with six ranks (square). Originally from a single plant grown by Mr. N. P. Nielsen at the Tystofte Experiment Station. Late, essentially with large grains. Resists well *Helminthosporium gramineum* and smut (Ustilago). Gives a large harvest of grain and straw. Should be sown early. Thrives especially well in good soil."

37708. Avena sativa L. Poaceæ. **Oat.**

"No. 6. Yellow Naesgaard oats (*Gul Naesgaard Havre*); spring oats. Originally from a single plant of *Beseler* oats grown by Mr. H. A. B. Vestergaard at the Abed Experiment Station. The chaff is yellow; hence the name. Weight of grain and volume very high. Straw stiff and large quantities obtained. The land should be strongly fertilized and seed should be sown early."

37709. Lolium multiflorum Lamarck. Poaceæ. **Italian rye-grass.**

"No. 11. Italian rye-grass; Tystofte No. 152. A subvariety grown by Mr. N. P. Nielsen at the Tystofte Experiment Station from a single plant. Of very early maturity, with ample and leafy stalk growth. Thrives especially well on nonpermanent pasture land. Gives large and sure harvests not only at the first mowing, but also in the second growth."

37710. Festuca elatior L. Poaceæ. **Meadow fescue.**

"No. 12. Meadow fescue; subvariety No. 9 of L'Union des Sociéties Coopératives de Consommation de Danemark, and grown by Mr. Karl A. Jorgensen, Lyngby, from a single plant. A little late, very resistant to rust (Puccinia). Gives large and sure harvests, especially on the first mowing. Thrives only in pasture land, which should remain more than one year in grass."

37711. Dactylis glomerata L. Poaceæ. **Orchard grass.**

"No. 13. Orchard grass; subvariety Olsgaard. Grown by Mr. Rasmussen, Olsgaard. Resembles in appearance and its early-maturing qualities the American orchard grass. Gives large harvests. Thrives only in pasture land, which should remain more than one year in grass."

37712. Eremocitrus glauca (Lindl.) Swingle. Rutaceæ.
(*Atalantia glauca* Benth.) **Desert kumquat.**

From Brisbane, Queensland, Australia. Presented by Mr. J. F. Bailey, Brisbane Botanic Gardens. Received January 22, 1914.

"From the experiment station at Dulacca. The people in the district are using quantities of them for drinks." (*Jean White.*)

"A shrub or small tree bearing edible fruits and occurring in Queensland and New South Wales, Australia, in subtropical regions subject to severe cold and extreme drought. The leaves of the plant are small (1 to 1½ by one-eighth to one-fourth inch), emarginate, and show marked drought-resistant adaptations. The fruits of this species are used by the settlers in Australia for jam and pickles and ade is made from the juice. The Australian desert kumquat is the hardiest evergreen citrus fruit known, besides being the only one showing pronounced drought-resisting adaptations; it bears in the wild state edible fruits with a pleasant acid juice and a mild-flavored peel. These characteristics make this plant very promising for use in breeding new types of hardy drought-resistant citrus fruits." (*W. T. Swingle. In Bailey, Standard Cyclopedia of Horticulture.*)

37713. ASPARAGUS TENUIFOLIUS Lam. Convallariaceæ. **Asparagus.**

From Chene, Geneva, Switzerland. Presented by Mr. Henry Correvon. Received April 6, 1914.

See S. P. I. No. 33147 for previous introduction.

"An herbaceous perennial from southern Europe; like *A. officinalis*, with very slender, numerous cladodes and large, bright red berries." (*J. B. Norton. In Bailey, Standard Cyclopedia of Horticulture.*)

37714 to 37717. CICER ARIETINUM L. Fabaceæ. **Chick-pea.**

From Dardanelles, Turkey. Presented by Mr. F. R. J. Calvert, Thymbra Farm. Received April 4, 1914.

"The season for planting these beans is from the beginning of April to the middle of May." (*Calvert.*)

"It is a viscose, pubescent, much-branched, annual herb, generally not exceeding 60 cms. in height. The stem is more or less woody and ribbed, and the leaves are compound, pinnate, and stalked, with a varying number of leaflets, not generally exceeding 16. The flowers are papilionaceous, white or purplish in color, solitary, and with geniculate stalks. The fruit is an oblong, turgid, 2-seeded pod 2 to 2.5 cms. long and about half as broad, and the seed is generally somewhat symmetrically wrinkled. No varieties are distinguished by growers, but seed merchants distinguish two forms, viz, the *Nitaya* and the *Dakar*, these two merely constituting a single variety, superior samples being reckoned as *Nitaya* and those inferior in quality as *Dakar*. When the crop is to be eaten fresh, the harvesting is done about four months after planting, while the seed is yet tender and before the seed coat begins to harden and become tough. Grown for grain, the crop is harvested about five and one-half or six months after sowing." (*Foaden and Fletcher, Textbook of Egyptian Agriculture.*)

The four numbers were received separately, but without any notes as to their differences. In appearance there are no evident differences.

37718. DIOSPYROS KAKI L. f. Diospyraceæ. **Persimmon.**

From Wakamatsu, Iwashire, Japan. Presented by Rev. Christopher Noss, M. D. Cuttings received April 9, 1914.

"*Gosho.*"

37719 to 37721.

From Kashgar, Chinese Turkestan. Presented by Mr. George Macartney, British consul general. Received April 4, 1914.

37719 and 37720. LINUM USITATISSIMUM L. Linaceæ. **Flax.**

37719. From Kashgar. 37720. From Tashmalik.

37721. CANNABIS SATIVA L. Moraceæ. **Hemp.**

"Kashgar hempseed."

The hempseed was requested as the variety from which hashish or bhang is made. See Watt, Commercial Products of India, for a full account of the preparation and use of this narcotic.

37722. CANAVALI sp. Fabaceæ. **Babricou bean.**

From Bridgetown, Barbados, British West Indies. Presented by Mr. John R. Bovell, Department of Agriculture. Received March 15, 1914.

37723. HOLCUS SORGHUM L. Poaceæ. Sorghum.
(*Sorghum vulgare* Pers.)

From Algeria, Algiers. Presented by Dr. L. Trabut, Government botanist. Received April 9, 1914.

"Sorghum gathered at the mouth of Oued Zhour. Gathered from the fields where I observed the *Mezera* or sorghum hybrid of *Sorghum halepense* (*Sorghum annuum*, Trabut's Flora of Algeria). It is probable that you will obtain this form from the seeds. I would have gathered seed of *Mezera*, but these seeds drop when they are ripe like *Sorghum halepense*." (*Trabut.*)

When grown this proved to be the ordinary sorghum, with no trace of the expected hybrid, and it has been discarded as a variety of little or no value.

37724. CITRUS GRANDIS (L.) Osbeck. Rutaceæ. Pummelo.
(*Citrus decumana* Murr.)

From Siam. Presented by Mr. Harry Boyle, assistant horticulturist, Bureau of Agriculture, Philippine Islands. Received December, 1913.

"On September 13 the writer proceeded to the Nakon Chaisri district, where the finest pummelo orchards are located. The largest of these was owned by a Chinese planter and contained about 20 hectares, three-fourths of which was planted with pummelos of the 'seed' variety, while some 25 per cent of the area contained 'seedless' trees. The orchard is divided into plats some 7 meters wide by 60 to 90 meters long, separated by trenches some 3 to 4 meters wide by 2½ meters deep. The pummelo trees are planted in single rows on these plats. All trees are propagated by marcottage, or the 'don' method. The writer was able to demonstrate the modern methods of buddage; and through the assistance of Koon Pisit explained each step so that, were it not for the deeply inoculated custom in vogue there, the planter would now be able to propagate his trees much more rapidly and economically. The soil of this orchard contains about 60 per cent clay.

"The first fruits examined in the 'seedless' section proved to be full of seeds. Upon inquiry as to the reason for this it was stated that the seedlessness was due to the salt deposited from the brackish water which backs up into the river during the dry season; the planter also said that a coconut shell of salt was placed in the hole at the time of transplanting the tree, and that another shellful was given the tree each year." (*H. H. Boyle, in Philippine Agricultural Review, February, 1914.*)

37725. CYAMOPSIS TETRAGONOLOBA (L.) Taub. Fabaceæ. Guar.
(*Cyamopsis psoraleoides* DC.)

From Bombay, India. Procured from Messrs. Ralli Bros., through the American consul at Bombay. Received April 7, 1914.

"A robust annual pulse cultivated in many parts of India from the Himalayas to the Western Peninsula and never found truly wild in any part of India. Mollison mentions three forms met with in Kaira and Baroda territory, viz, (1) *pardeshi*, sown sparsely among kharif (autumn) cereals; (2) *sotia guvar*, growing 8 to 10 feet high and sown extensively in Gujarat. It is raised as a shade plant to ginger, and the leaves are left on the ground as a green manure; in the garden lands of Surat it is grown with cucumbers, being planted in May and irrigated until the rains. The pods are used as a vegetable and served like French beans; (3) *deshi*, the common form with violet seeds, sown as an ordinary dry crop and extensively used as cattle fodder. Duthie and Fuller mention a form known as *deoband kawára*, which is often culti-

37725—Continued.

vated in the United Provinces as a hedge or shade plant. They observe also that when the plant is cultivated as a vegetable it is grown on highly manured land near villages, but when raised for cattle fodder is cultivated on light, sandy soils. It is sown at the commencement of the rains and cut in October. The average yield of dry pulse is about 10 maunds to the acre. *Guar* is specially suitable as a green manure or green fodder crop, owing to the amount of nitrogen it contains and its comparative freedom (when young) from fiber. Church gives the nutrient ratio of the dry beans as 1:1.7, and the nutrient value 79. In certain districts, such as Meerut, where this plant is regularly and largely grown as cattle food, the breed of animals met with is remarkably fine—a high testimony to the care taken of them." (*Watt, Commercial Products of India.*)

37726 to 37728.

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, Department of Agriculture. Received March 31, 1914.

37726. Mimusops elengi L. Sapotaceæ. **Munamal.**

See S. P. I. Nos. 5029 and 30957 for previous introductions.

"A large, evergreen tree, with fleshy leaves, glossy, oval, with nervation slightly emphasized; calyx of six sepals in two series; corolla rotate, with linear appendages; stamens six; 6-celled superior ovary; berry with a single seed by abortion. The wood is good for cabinet-making, joinery, and turning. The fruit, which is shaped like an olive, is eaten, but its flavor is not very agreeable. The odorous flowers, which possess astringent and tonic properties, serve for the preparation of a perfume; the red, woody, fibrous bark is astringent and is used as a febrifuge and a tonic; a decoction is used as a gargle for salivation. The fruits and seeds furnish an oil for burning. The root is astringent." (*Lanessan, Les Plantes Utiles des Colonies Françaises.*)

37727. Sterculia sp. Sterculiaceæ.

37728. Byrsonima crassifolia (L.) H. B. K. Malpighiaceæ. **Nance.**

"A shrub or small tree, flattened and forming in certain parts of the torrid and temperate regions, but especially in the torrid regions along the Pacific, characteristic groups called *nancitales* (from its common name *nance*). The leaves are thick, oval, entire, and smooth. The yellow flowers form short spikes; the fruits are small yellow berries and give off a peculiar odor, rather unpleasant, which is the reason, according to Gagini, that the Spanish call the tree *merdiera*. The fruits are used to make a sort of beverage." (*Pittier, Les Plantas Usuales de Costa Rica.*)

37729. Ficus sycomorus L. Moraceæ. Sycamore fig.

From Cairo, Egypt. Presented by Mr. Thomas W. Brown, at the request of Prof. S. C. Mason, of the Bureau of Plant Industry. Received April 11, 1914.

"Sycamore fig."

"This is the sycamore tree of Scripture. It is a very large tree, growing abundantly in Egypt, Syria, and the East; it produces red figs about the size of an egg, but almost insipid; the Egyptians eat them with great relish; for drying they are of no value, being then tasteless, unpleasant, and full of seeds.

37729—Continued.

The fig of this species is an article of great consumption in those countries; wine and vinegar are made from the fermented fruits; the wood has been employed from great antiquity in making mummy cases." (*Hogg, Vegetable Kingdom.*)

Cuttings.

37730. CLITORIA LAURIFOLIA Poir. Fabaceæ.

(*Clitoria cajanifolia* Benth.)

From Buitenzorg, Java. Presented by the Experimental Garden of the Department of Agriculture. Received April 11, 1914.

A pink-flowered shrub growing to a height of 4 or 5 feet and propagated by cuttings. Native of Malay Archipelago and introduced throughout the Tropics.

37731 and 37732. ORYZA SATIVA L. Poaceæ. **Rice.**

From Sophia, Bulgaria. Presented by Mr. Alaricus Delmard, Palais de Sophia. Received April 11, 1914.

"Red and white varieties. The red is for rich soils and the white for poor soils. The results also depend on the quantity and quality of the water of irrigation; for example, near Philippopolis some very poor land produces excellent rice, for the reason that the river which irrigates that land comes from the beech forests and sheep pastures, and the water is rich in decayed vegetable and animal matter, the sheep grazing on the mountain moors, where the swampy ground is full of little streams supplying the river. The red rice is the one that gives a far greater yield. I can not obtain the true name of these two varieties, but they are the only two cultivated here especially for Turkish markets. Cleaned specimens are sent to show just the amount of cleaning given to produce the just medium between color when cooked and retaining the best flavor." (*Delmard.*)

37731. Red. 37732. White.

37733 and 37734. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**

(*Sorghum vulgare* Pers.)

From Kharkof, Russia. Presented by Mr. J. V. Emelianoff, acting director, Agricultural Experiment Station. Received April 9, 1914.

37733. "*Black Grushevsk* has been originated in Ekaterinoslav Province (Grushevsky Farm of the Grand Duke Nicholas)." (*Emelianoff.*)

"On the whole, about 20 varieties were cultivated during the experimental period, the best results, from the seed point of view, being obtained with the Black Dwarf Grushevsk sorghum, which in 1910 produced 3,602 pounds per acre, and in 1911, 2,803 pounds per acre. This kind of sorghum is distinguished by its maturing sufficiently early even in very cold summers. The presence of side branches increases the yield in the case of dry seasons, but in very wet years they have a contrary effect." (*Bulletin Agricultural Intelligence and Plant Diseases, vol. 3, No. 6, p. 1307–1308, 1912.*)

37734. "*Early Iantar.* This variety was received from your country and this name is nothing else but a translation into Russian of your name 'early cane.'" (*Emelianoff.*)

"In dry seasons or on drier plots the early varieties, such as *Early Iantar*, came to the fore. In order to insure abundant forage crops

37733 and 37734—Continued.

throughout the summer two varieties of sorghum should be sown, a very early kind, *Jantar*, which can be first cut at the beginning of July, and a rather late kind which yields well, such as *Orange Kansas*, which can be cut for the first time at the end of July." (*Bulletin Agricultural Intelligence and Plant Diseases, vol. 3, No. 6, p. 1308, 1912.*)

37735. PELARGONIUM RADULA (Cav.) L'Heritier. Geraniaceæ. **Rose geranium.**

From Algeria. Presented by A. Mermier Boyer, Chabet el Ameur. Received April 15, 1914.

"The rose geranium, a plant with an exquisite odor, grown and distilled in France, Spain, Algiers, and the island of Reunion, deserves some consideration with regard to cultivation, inasmuch as the oil distilled from the plant is of such a nature as to make it almost indispensable in the perfumery industry. Unlike that of lavender, the odor of the rose geranium resides in the leaves, the flowers being almost odorless. Experiments in a preliminary way are now being carried on to determine the quality of the oil capable of being distilled from this plant. As in the case of the rose and lavender, the most suitable location can be learned only by a system of tests in localities with different climatic and soil conditions." (*Rabak, Frank, The Production of Volatile Oils and Perfumery Plants in the United States, U. S. Dept. of Agr., Bur. of Plant Ind. Bull. 195, p. 41–42, 1910.*)

It is for the experiments above mentioned that these cuttings were introduced.

37736. PELARGONIUM ODORATISSIMUM (L.) Solander. Geraniaceæ. **Rose geranium.**

From Erfurt, Germany. Procured from Haage & Schmidt. Plants received April 14, 1914.

37737 to 37740. ORYZA SATIVA L. Poaceæ. **Rice.**

37737 and 37738.

From Batum, Russia. Presented by Mr. Leslie A. Davis, American consul. Received March 30, 1914. Quoted notes by Mr. Davis.

37737. "Swamp rice. This is a better variety than the mountain rice, and was formerly cultivated here to some extent, but its culture is now prohibited in the Province of Batum as one of the measures being taken to eradicate malaria from this district. I understand that this variety is now cultivated on the other side of the Turkish frontier and in the Lenkoran district on the Caspian Sea."

37738. "Mountain rice. This variety is inferior to the swamp rice, but it is the only variety now cultivated here."

37739 and 37740.

From Marseille, France. Presented by Mr. Alphonse Gaulin, American consul general. Received March 26, 1914. Quoted notes by Mr. Gaulin.

"Rice is cultivated in France only in the departments of Bouches du Rhone, Gard, and Aude. The total area devoted to this crop, which was about 3,000 acres 10 years ago, has been steadily decreasing in recent

37737 to 37740—Continued. (Quoted notes by Mr. A. Gaulin.)

years, and is now less than 1,400 acres, distributed as follows: Bouches du Rhone, 1,025 acres; Gard, about 300 acres; Aude, 25 acres. In the Bouches du Rhone the industry is limited to the Camargue region, a vast marshy plain of alluvial formation comprising the delta of the Rhone and consisting mainly of rough pasture lands. The only commercial varieties of rice grown in the country are the *Ranghino* and the *Bertone*, which were imported from Italy. The crops for 1912 and 1913 were estimated at 1,260 and 940 metric tons, respectively, of 'risone' or undecorticated grain. According to M. E. de Laroque, Director of the Agricultural Service of the Bouches du Rhone Department, the yield of 'risone' in the Camargue during the last two years was as follows: 1912, 924 metric tons; 1913, 747 metric tons. M. de Laroque states that the cultural methods employed are rather primitive, and unquestionably inferior to the methods in vogue in Italy, and particularly in Spain. These methods are described in a pamphlet entitled 'La Culture du Riz en Italie et en Camargue,' by M. de Laroque. The annual imports of rice at Marseille average over 60,000 metric tons, of which the greater part is taken up by local mills. These imports come chiefly from Indo China, British India, Japan, Java, and Egypt. Rice exports from Marseille average about 2,000 metric tons, consisting mainly of whole rice, flour and semolina, and screenings, the French African colonies and possessions being the principal countries of destination. According to present indications this trade can be at best only of occasional interest to American shippers, so far as this district is concerned. A list of the principal Marseille importers and rice millers may be had from the Bureau of Foreign and Domestic Commerce at Washington."

37739. "The *Ranghino* represented about four-fifths of the crop in 1912 and 1913. The weight of the straw is about double that of the grain. The price averaged 22 francs ($4.246) per 100 kilos (220 pounds) in 1912, and ranged from 18 to 21 francs ($3.47 to $4.05) in 1913. In this district rice is sown at the end of April or the beginning of May. This variety is harvested in September and October."

37740. "*Bertone* is sown at the end of April or the beginning of May and harvested in August or September."

37741 and 37742.

From Brussels, Belgium. Presented by Mr. H. Meyer, acting director, Ministry of the Colonies. Received April 6, 1914.

37741. CROTON ANGOLENSIS Muell. Arg. Euphorbiaceæ.

"A euphorbiaceous plant from the Belgian Kongo. The native name is *Saku*, so called by the Nasku, meaning 'lumbago.' A large forest tree. Its aromatic and spicy bark is macerated in palm wine and then used in rubbing for pains. Its wood is of good quality and is used for building and for timber." (*Meyer.*)

37742. PANDANUS BUTAYEI Wildem. Pandanaceæ.

"One of the *Pandanaceæ* from the Belgian Kongo. The native name in Kanga is *Kenge*, meaning 'to tie, to bind, to twist,' alluding to the different uses of the leaves. Beautiful ornamental plant growing along rivers. The leaves serve for making solid and flexible mats, which bear the name *Mfumbu* and more rarely that of *Matea*." (*Meyer.*)

37743. Vigna sinensis (Torner) Savi. Fabaceæ. **Cowpea.**

From Johannesburg, Transvaal, South Africa. Presented by Mr. J. Burtt Davy, Transvaal Maize Breeding Station, Burttholm, Vereeniging, South Africa. Received April 11, 1914.

"*Dinawa* (Sesutu name) grown by the Transvaal Basuto among the maize, for food." (*Davy.*)

37744. Prunus armeniaca L. Amygdalaceæ. **Apricot.**

From the oasis of Dakhleh, Egypt. Presented by Sheik Abu Bakr, of Rashida village, to Prof. S. C. Mason, of the Bureau of Plant Industry, at the time of his visit there. Received April 12, 1914.

"Dakhleh apricot. Seedling apricots growing in the irrigated gardens of the oasis of Dakhleh, western Egypt. The fruits vary greatly in size and quality, but some are of decided excellence. Quantities of them are dried with the pits in them and used stewed as a dessert during the winter months. These fruits are believed to have been grown in the oasis since the Roman occupation, nearly 2,000 years ago, and are interesting to American plant breeders on account of their resistance to desert conditions of heat. The mean annual temperature of the oasis of Dakhleh is above 75° F., some monthly means being close to 90° F." (*Mason.*)

37745. Cocos romanzoffiana Cham. Phœnicaceæ. **Palm.**

From Rio de Janeiro, Brazil. Presented by Dr. John C. Willis, botanic garden. Received April 13, 1914.

See S. P. I. No. 34757 for previous introduction.

"Stems 30 to 40 feet high, somewhat fusiform above; leaves about half as long as the caudex, the withered ones deflexed, pendent, the upper ones spreading, often arching; segments conduplicate at the base, ensiform; spadix about 6 feet long, at first inclosed in a stout, pendulous spathe which appears among the lowest leaves. In southern Brazil, near the sea, according to recent characterizations, it comprises a wide variety of forms. Probably the *Cocos flexuosa* planted in this country is not *Cocos flexuosa* of Martius, but of Hort., a hardy form of *romanzoffiana*, which, according to the late Barbosa-Rodrigues, is a polymorphic species including, besides this *flexuosa* type, all our garden forms known as *C. plumosa* Hook., *C. coronata* Hort. (not Mart.), *C. botryophora* Hort., *C. datil* Griseb. and Drude, and *C. australis* Mart." (*N. Taylor. In Bailey, Standard Cyclopedia of Horticulture.*)

37746 and 37747. Opuntia spp. Cactaceæ. **Prickly-pear.**

From Barbados, British West Indies. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received April 13, 1914. Cuttings of the following; quoted notes by Messrs. Dorsett, Shamel, and Popenoe.

37746. "(No. 73.) Cochineal cactus, as it is called by the negroes. Found growing near a small hut between Bridgetown and Holetown, about 2 miles back from the coast. The plant was treelike in form, about 12 feet in height, and covered with small fruits of a peculiar shade of cochineal red. Pads almost spineless."

37747. "(No. 74.) A low-growing, very spiny Opuntia, called by the negroes *flatiron prickles*, found along the roadside between Bridgetown

37746 and 37747—Con. (Quoted note by Mr. Dorsett and others.)

and Holetown, about 2 miles from the coast. It had been recently planted in this location for a permanent fence between the road and a farmyard. The plants were young and probably did not show their habit of growth very well. Pads covered with very abundant, long, light-yellow spines."

37748 to 37798.

From Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received April 13, 1914. Scions (except as noted) of the following; quoted notes by Messrs. Dorsett, Shamel, and Popenoe.

37748 to 37793. CITRUS spp. Rutaceæ.

37748 to 37751. CITRUS SINENSIS (L.) Osbeck. **Navel orange.**

From the grove of Dr. Fortunato da Silva, at Cabulla, Bahia.

37748. "Select tree No. 1. A tree about 12 years old, 16 feet in height, 16 feet in spread, with a trunk 20 inches in circumference near the ground. It is headed 2 feet above the ground and in habit of growth is spreading and drooping. The foliage is very dense, dark green in color; no spines. The June crop is 241 fruits and the December crop 65 fruits. One fruit has an abnormal shape, namely, a sunken section. A typical fruit weighs 400 grams, is 11¾ inches in circumference, 3¾ inches in diameter. The skin is one-eighth of an inch thick, the core being one-half of an inch in diameter. In form the fruit is spherical, flattened at the blossom end; button flush with surface, blossom flush with surface. When ripe the skin is yellowish green, flesh rich golden, surface smooth. Rag tender, juice very abundant, one fruit containing 150 c. c. Flavor sweet, quality good. Seeds, none. Navel three-eighths of an inch in diameter, opening three-sixteenths of an inch in diameter. This tree and select trees Nos. 2 and 3 in the same orchard are growing in the vicinity of a stable and probably receive more than the ordinary amount of manure. They were selected on the basis of large production of a fine quality of fruit. The trees are of very thrifty appearance, with an abundance of dark-green, healthy foliage. Few scale or other insect pests, fungus diseases, or plant parasites were found on these trees, indicating an apparent resistance to these enemies of the orange tree in this section, where no treatment for scale or plant parasites is ordinarily given."

37749. "Select tree No. 2. A tree 15 feet in height, 16 feet in spread, of erect habit of growth. It is about 12 years old, with a trunk 17¾ inches in circumference near the ground. It is headed 28 inches above the ground and the foliage is dense, deep green in color; no spines. The June crop is 113 fruits and the December crop 107. There are no apparent variations among the fruits, a typical one of which weighs 440 grams, is 12¼ inches in circumference, and in diameter is 3$\frac{13}{16}$ inches. The skin is three-sixteenths of an inch in thickness, and the core is nine-sixteenths of an inch in diameter. In form the

37748 to 37798—Contd. (Quoted notes by Mr. Dorsett and others.)

fruit is rather elongated, the button flush with the surface, as well as the blossom. When ripe, the skin is light green in color and the flesh light golden yellow. The surface is smooth. Rag tender, juice fairly abundant, one specimen containing 150 c. c. The flavor is sweet, rather insipid. Quality good in comparison with other navel oranges grown in this region. Seeds, none. Navel diameter seven-sixteenths of an inch; navel opening three-sixteenths of an inch."

37750. "Select tree No. 3. A 12-year-old tree, 16 feet in height, 18 feet in spread, drooping and spreading in form, with a trunk circumference of 20 inches. The foliage is dense, dark green in color; no spines. No variations appear among the 130 fruits of the June crop and the 55 fruits of the December crop. A typical fruit weighs 480 grams, is 12¼ inches in circumference, 4 inches in diameter, with a skin three-sixteenths of an inch in thickness. The core diameter is half an inch. Button and blossom flush with skin. When ripe, the skin is yellowish green, the flesh being deep golden yellow. The surface is smooth in texture. Rag tender, flesh very juicy, one specimen containing 170 c. c. Flavor is subacid; quality good. Navel diameter is five-sixteenths of an inch, navel opening being three-sixteenths of an inch. There are on this tree many blossoms just opening, fruits just set, and small fruits, as well as those mentioned in the June and December crops, indicating a tendency to bear throughout the year."

37751. "Select tree No. 4. A 25-year-old tree, 20 feet in height, 28 feet in spread, erect in habit; head almost 4 feet above the ground, with a trunk 32 inches in circumference. The foliage is sparse, deep green in color; spines long and sharp. There are 270 fruits in the June crop and 12 in the December crop. Selected because of the erect habit of the tree and on account of the fact that it is reported that the fruits frequently contain seeds."

37752. CITRUS SINENSIS (L.) Osbeck. **Navel orange.**

From the grove of Col. Frederico da Costa, Matatu, Bahia.

"Tree 2–8–2. A tree about 8 years old, 14 feet in height, 15 feet in spread, erect in habit, headed 11 inches above the ground, the trunk being 20½ inches in circumference. Foliage dense; very dark green in color; no spines. In the June crop there are 156 fruits; in December, 33 fruits. The principal variations appear in flattened fruits and large, protruding navels, although the navel is normally very small."

37753 to 37759.

From the grove of Dr. Fortunato da Silva, Cabulla, Bahia.

37753. CITRUS NOBILIS DELICIOSA (Tenore) Swingle. **Tangerine.**

"Select tree No. 5. A tree about 25 years old, 12 feet in height, 22 feet in spread; head 2 feet above the ground, spreading in form with a trunk 30 inches in circumference. Foliage dense,

37748 to 37798—Contd. (Quoted notes by Mr. Dorsett and others.)

very light green in color; no spines. The June crop is 350 fruits and the December crop 54 fruits, among which no variations appear. A typical fruit weighs 180 grams, is 9⅝ inches in circumference, 3 inches in diameter, with a skin one-eighth of an inch thick and a core five-eighths of an inch in diameter. The shape is flattened, the button end raised, the blossom end slightly depressed. When ripe, the skin is yellowish green, the flesh being pinkish in color. The surface is smooth, with oil glands deeply sunken. The rag is tender, the flesh very juicy, a single fruit containing 65 c. c. of juice. The flavor is pronounced and the quality good. There are from 20 to 23 seeds in a fruit."

37754 to 37759. CITRUS SINENSIS (L.) Osbeck.

Navel orange.

37754. "Tree 1-1-3. An old tree, 16 feet in height, 16 feet in spread, head 20 inches above the ground, spreading in form, with a trunk 21¾ inches in circumference. The foliage is open, deep green in color; thorns confined to one branch. There are no apparent variations among the 185 fruits of the June crop and 35 of the December crop. A typical fruit weighs 560 grams and is 13 inches in circumference; diameter 4⅛ inches, with a skin one-eighth of an inch in thickness and a core three-fourths of an inch in diameter. Form of fruit, elongated, flattened at the blossom end. Button and blossom flush with surface. When ripe, the skin is yellowish green in color, the flesh being golden. The surface is smooth. The rag is very coarse and the flesh dry, a single fruit containing only 150 c. c. of juice. The navel is 1 inch in diameter, the opening being three-fourths of an inch wide."

37755. "Tree 1-1-2, renewed tree top about 2 years old. A tree probably 25 years old, 16 feet in height, 20 feet in spread. Head 1½ feet above the ground, spreading in form, the trunk being 23⅝ inches in circumference. The foliage is open, deep green in color; no spines. There are about 10 fruits in the June crop and 20 in the December crop, among which no variations are apparent. A single typical fruit weighs 480 grams, is 12⅝ inches in circumference and 4 inches in diameter. The skin is one-eighth of an inch thick; a core rather open, seven-eighths of an inch in diameter. The shape is spherical, somewhat flattened at both ends, the button slightly sunken, blossom flush with the surface. When ripe the color is yellowish, rather better than the average, the flesh golden yellow. The rag is coarse, and a single fruit contains 150 c. c. of juice. The flavor is sweet, the quality fair. In diameter the navel is five-eighths of an inch and the opening is three-sixteenths of an inch."

37756. "Tree 1-4-6. Tree 25 years old, 14 feet in height, 14 feet in spread, erect in habit, head 1½ feet above the ground, with a trunk 23 inches in circumference. The

37748 to 37798—Contd. (Quoted notes by Mr. Dorsett and others.)

foliage is very open, deep green in color; no spines. The June crop is 191 fruits and the December crop 15 fruits, among which there are no apparent variations."

37757. "Tree 1-5-2. A tree about 25 years old, 13 feet in height, 13 feet in spread, headed 10 inches above the ground; spreading in form, with a trunk 27 inches in circumference. The foliage is dense, deep green in color; no spines. There are 145 fruits in the June crop and 14 in the December crop. The most noticeable variation among them is the tendency to elliptical form, which is shown by a few fruits."

37758. "Tree 1-6-3. A tree about 25 years old, 18 feet in height, 12½ feet in spread, very erect in form, headed 1 foot above the ground, with a trunk 32 inches in circumference. Foliage open, deep green in color; no thorns. The June crop is 125 fruits; the December, 30 fruits. One orange-colored fruit is evidently off season. There are no other noticeable variations. The navel is small."

37759. "Tree 1-6-7. A tree about 25 years old, 16 feet in height, 16 feet in spread, erect in growth; head 14 inches above the ground, with a trunk 33 inches in circumference. The foliage sparse, deep green in color; no spines. In the June crop there are 355 fruits and in the December crop 11 fruits, among which there are no apparent variations. The navel is uniformly small."

37760 to 37773.

From the grove of Col. Frederico da Costa, Matatu, Bahia.

37760 to 37770. CITRUS SINENSIS (L.) Osbeck. **Navel orange.**

37760. "Tree 1-8-6. A tree about 15 years old, 18 feet in height, 20 feet in spread, headed 11 inches above the ground; spreading in habit, with a trunk 23½ inches in circumference. The foliage is dense, dark green in color; no spines. In the June crop there are 171 fruits and in the December crop 8 fruits, among which no variations are apparent. The navel is very small. This is a very old tree, having the largest trunk of any citrus tree observed in this orchard. Extreme fruitfulness is combined with the tendency to bear fruits all the year round, as there are flowers in all stages of development on this tree. No mottle-leaf was observed, and it seems possible that this tree may be resistant to chlorosis."

37761. "Tree 1-8-1. A tree about 15 years old, 16 feet in height, 18 feet in spread, drooping in habit, headed about 13 inches above the ground, with a trunk 22¾ inches in circumference. The foliage is very dense, deep green in color; no spines. In the June crop there are 110 fruits and in the December crop 16 fruits, among which no variations are visible. The navel is small to medium in size."

37762. "Tree 1-8-5. A tree about 15 years old, 18 feet in height, 20 feet in spread, headed 1½ feet from the ground;

37748 to 37798—Contd. (Quoted notes by Mr. Dorsett and others.)

spreading in habit, with a trunk 29 inches in circumference. Foliage dense, dark green in color; no spines. There are 145 fruits in the June crop and 50 in the December crop, the most notable variation being an occasional striped fruit. The navels vary in size from small to medium; a fine, healthy tree producing fruits of large size."

37763. "Tree 1–7–6. A tree about 15 years old, 18 feet in height, 20 feet in spread, erect in habit, headed 20 inches above the ground, with a trunk 2 feet in circumference. The foliage is dense, dark green in color; no spines. In the June crop there are 196 fruits and in the December crop 13 fruits. The principal variation is a protruding navel, though the size is normally small to medium. A fine, healthy tree."

37764. "Tree 2–5–1. A tree about 8 years old, 13 feet in height, 16 feet in spread, headed 11½ inches above the ground; spreading in habit, with a trunk 20¾ inches in circumference. The foliage is dense, dark green in color; no spines. There are 85 fruits in the June crop and 250 in the December crop. On one limb there are 8 wrinkled fruits of the Australian type. The navel is normally very small. Remarkable for the large number of fruits produced in the December crop."

37765. "Tree 2–6–1. Tree about 8 years old, 13 feet in height, 15 feet in spread, drooping in habit, headed 1½ feet above the ground. Trunk 18¼ inches in circumference. The foliage is dense, dark green in color; no spines. There are 44 fruits in the June crop and 327 in the December crop, all being very uniform in type. The navel is uniformly small. This tree is remarkable for the large number of fruits in the December crop."

37766. "Tree 2–11–1. A tree about 8 years old, 11 feet in height, 13 feet in spread, headed 16 inches above the ground, spreading in habit, circumference of trunk 16¾ inches. Foliage very dense, dark green; a few small spines. In the June crop there are 50 fruits and in the December crop 59. The principal variations noted are a few large navels and the abnormal shape of the fruit. The navel is normally medium sized. Selected for its apparent tendency to produce fruit throughout the year."

37767. "Tree 2–8–4. A tree about 8 years old, 13 feet in height, 18 feet in spread, headed 10 inches above the ground, spreading in habit, trunk 20½ inches in circumference. Foliage very dense, dark green in color; a few small spines. In the June crop there are 262 fruits and 21 in the December crop, among which there are a few with very large navels, although the navel is normally medium sized. This tree was selected for its large production of June fruits."

37748 to 37798—Contd. (Quoted notes by Mr. Dorsett and others.)

37768. "Tree 2-9-5. A tree about 8 years old, 15 feet in height, 15 feet in spread, erect and open in habit, headed 16 inches above the ground, with a trunk 21¼ inches in circumference. The foliage is dense on the outside of the tree, dark green in color; no spines. In the June crop there are 210 fruits and in the December crop 35. The shape of the fruit varies considerably. There are some large navels, although the navel is normally very small. Selected because of its rather peculiar, upright, open habit of growth and small leaves. It is distinct in type from the typical navel orange tree in Bahia."

37769. "Tree 2-10-2. A tree about 8 years old, 14 feet in height, 16 feet in spread, headed about 15 inches above the ground, spreading in habit, with a trunk 19¼ inches in circumference. Its foliage is very dense, dark green in color; no spines. In the June crop there are 297 fruits and 20 in the December crop, among which there are no apparent variations. The navel is uniformly very small. Selected because of the preponderance of June fruits."

37770. "Tree 2-10-1. A tree about 8 years old, 14 feet in height, 15 feet in spread, of drooping habit, headed 17 inches above the ground, with a trunk 18 inches in circumference. The foliage is very dense, dark green; no spines. There are 98 fruits in the June crop and 97 in the December crop. The fruit variations are very noticeable on this tree, the principal ones being cylindrical and flattened shapes, the fruit wrinkled, very large and protruding navels, and very large navel openings. The navel varies from very small to very large. A typical specimen from this tree weighs 340 grams, is 11⅞ inches in circumference, 3¾ inches in diameter, the skin is one-sixteenth of an inch thick, and the core is one-half inch in diameter. The shape is most commonly flattened, the button flush with the surface, the blossom sunken. The color is yellowish green, with the flesh deep golden yellow. The surface is very smooth. The rag is coarse and the flesh fairly juicy, a typical specimen containing 130 c. c. of juice. The flavor is subacid and the quality good. This variety is unusually thin skinned."

37771. Citrus nobilis deliciosa (Tenore) Swingle.

Tangerine.

"Tree 2-6-2. Tree about 11 feet in height, 12 feet in spread, headed 17½ inches above the ground, spreading in habit, the trunk being 18 inches in circumference. The foliage is very dense, light green in color; many large spines. There are no fruits in the June crop, but 565 in the December crop, among which two were found with small navels. Typical fruit weighs about 120 grams, is 8⅞ inches in circumference, 2¾ inches in diameter, and skin one-eighth of an inch thick, and the core five-eighths of an inch in diameter. The shape is flattened, button flush with surface, blossom slightly sunken. The surface is yellowish green in color, the flesh pinkish. The rag is tender,

37748 to 37798—Contd. (Quoted notes by Mr. Dorsett and others.)

and a typical fruit contains 50 c. c. of juice. The flavor is sweet and the quality fair. There are about 19 seeds to the fruit."

37772 and 37773. CITRUS LIMETTA Risso. **Sweet lime.**

37772. "Tree 1–2–5. This fruit, known in Portuguese as *lima doce*, is about the size of a lemon, a typical fruit being 2¼ inches in diameter. The skin is pale green in color externally and slightly less than one-fourth of an inch in thickness. The core is closed and small, the juice sweet and cloying in flavor. This is a fruit that is highly esteemed by the Bahians. Its flavor is similar to that of the lime, but with less acidity. The seeds number 12. The tree is very productive."

37773. "Tree 1–1–7. See previous number [S. P. I. 37772] for description."

37774 to 37777.

From the grove of Col. Demetrio Luiz de Souza, Cruz de Cosme, Bahia.

37774. CITRUS SINENSIS (L.) Osbeck. **Navel orange.**

"Tree 1–6–1. A tree about 25 years old, 18 feet in height, 21 feet in spread, headed 1½ feet above the ground, spreading habit, trunk 27 inches in circumference. Foliage dense, dark green in color; no spines. There are 237 fruits in the June crop and 49 in the December crop, no variations among them being apparent. The navel is medium sized. The fruits on this tree were some of the finest we observed during our stay in Bahia."

37775. CITRUS AURANTIUM L. **Bitter orange.**

"Tree 1–1–1. The bitter or Seville orange, known in Portuguese as *laranja da terra*. This is the citrus generally used in Bahia as a stock for the navel orange, as well as for other varieties of citrus fruits. The tree from which these buds were taken is about 15 years old, 14 feet in height, 13 feet in spread, erect in habit, headed 15 inches above the ground, with a trunk 23½ inches in circumference. The foliage is dense, deep green; thorns very large and strong. There are 106 fruits in the June crop and 46 in the December crop, among which no variations were noticed. Typical fruit of *laranja da terra* weighs about 180 grams and is 9½ inches in circumference, 3 inches in diameter, with a skin one fourth of an inch thick and a core three fourths of an inch in diameter. The shape is oblate, with the button and blossom flush with the surface. The skin is dull orange in color and the flesh pale orange. The texture of the surface is rough. The rag is tender, juice abundant, a single fruit containing 60 c. c. The flavor is bitter and rather acid. The quality is poor for eating out of hand, the fruit being used principally for making marmalade. Obtained for trial as a stock plant for citrus fruits in this country and also for marmalade or cooking purposes."

37748 to 37798—Contd. (Quoted notes by Mr. Dorsett and others.)

37776. CITRUS SINENSIS (L.) Osbeck. **Orange.**

"*Laranja da china.* Tree 1–2–1. This is a seedy, sweet orange, inferior in quality to the navel orange and grown principally as a stock plant for the latter. In parts of the interior of Brazil, however, it is commonly grown for its fruit, the navel orange being little known in many of these regions. It is of fair size, usually pale green in color when ripe, with tough rag, many seeds; juice abundant and of subacid flavor. In Bahia it is not commonly used for stock, *laranja da terra* being used for this purpose, but in the interior, where the latter is little known, it is more largely utilized. This variety ripens in Bahia after the June crop of navels is gone, hence it brings a good price on the market."

37777. CITRUS SINENSIS (L.) Osbeck. **Orange.**

"A seedy orange, said to be identical in character with *laranja selecta* as grown at Bahia, and taken from a tree said by Col. Demetrio Luiz de Souza to have been grown from a bud taken from a navel-orange tree. The tree is 6 years of age, 12 feet in height, 12 feet in spread, head a little less than 2 feet above the ground, spreading in form, with a trunk 15½ inches in circumference. The foliage is dense, dark green in color; a few very small thorns. There are 31 fruits in the June crop and 39 in the December, no variations being apparent among them. The fruit is about 3 inches in diameter, with skin one-fourth of an inch thick and core about half an inch in diameter. The rag is tender and the juice very abundant. The fruit shows no sign of a navel and contains about eight perfectly developed seeds. This tree is of special interest because of the possibility of its having arisen as a bud sport or as a reversion of the navel orange to the parent *laranja selecta* type."

37778. CITRUS GRANDIS (L.) Osbeck. **Pummelo.**
(*Citrus decumana* Murr.)

From the ranch of Dr. Miguel de Teive e Argollo, Roma, Bahia.

"A very large pummelo with flesh of rich pink color. A good specimen weighs 2,000 grams and is 23½ inches in circumference, with a diameter of 7½ inches. The skin is 1 inch thick and the core 1½ inches in diameter. The form of fruit is oblate, with a smooth, fine skin, light green in color. The rag is coarse, the flesh rather dry, the flavor sweet and agreeable. One fruit contained 102 seeds. This pummelo is not widely known in Brazil. The tree is low and spreading in form, and the fruits are produced in clusters like the grapefruit grown in the United States. It seems to have possibilities as a salad fruit, particularly because of its attractive color as well as its good flavor."

37779 to 37782.

From the grove of Dr. Miguel de Teive e Argollo, Roma, Bahia.

37779. CITRUS BERGAMIA Risso. **Bergamot orange.**

"Tree said by Dr. Argollo to be the Bergamot orange. A typical fruit weighs about 620 grams, is 14½ inches in circumference, 4⅝ inches in diameter, with skin five-eighths of an inch thick and core a half inch in diameter. The shape is somewhat

37748 to 37798—Contd. (Quoted notes by Mr. Dorsett and others.)

pyriform, the fruit being elongated at the base and flattened at the apex. The smooth surface is yellowish in color. The rag is coarse, the flesh not very juicy, one fruit containing about 110 c. c. of juice. The flavor is sweet, with a slight bitter twang. Quality can be considered only fair. The specimen examined contained 7 seeds."

37780. CITRUS GRANDIS (L.) Osbeck. **Pummelo.**
(*Citrus decumana* Murr.)

"A seedless variety, not widely grown in Bahia, and found by us only in this one garden. Averages about 1½ pounds in weight, has a rather thick skin and abundant juice. The flavor is that of typical grapefruits grown in the United States. Its origin is unknown."

37781. CITRUS MEDICA L. **Citron.**

"A fruit about 1,000 grams in weight, 14¾ inches in circumference, 4¾ inches in diameter, with a skin 1¼ inches thick, and a core 1 inch in diameter. The surface is rough and pale green in color. The flesh contains but little juice and is pale straw color with coarse rag. The flesh is utilized for the manufacture of a preserve."

37782. CITRUS SINENSIS (L.) Osbeck. **Orange.**

"*Laranja selecta*. Cuttings from a tree on Dr. Argollo's place. This orange has been introduced from Rio de Janeiro under S. P. I. No. 37840, which see for description."

37783. CITRUS SINENSIS (L.) Osbeck. **Navel orange.**

From the grove of Col. Julio Barretto, Cabulla, Bahia.

"A tree said to be more than 40 years old, 20 feet in height, 21 feet in spread, erect in habit, headed 1 foot 5 inches above the ground, with a trunk 38¾ inches in circumference. The foliage is sparse, dark green; no spines. There are in the June crop 398 fruits and in the December crop 264 fruits. Little variation is noticeable among them, excepting the size of navels, which varies from small to medium. A typical fruit weighs 420 grams, is 11⅞ inches in circumference, 4¾ inches in diameter, with a core three-fourths of an inch in diameter. The shape is elongated, the button and blossom flush with the surface. The color is yellowish green and the flesh golden yellow. The surface is smooth. The rag is tender and the flesh very juicy, one fruit containing 140 c. c. of juice. The flavor is subacid, the quality being very good. The navel is seven-sixteenths of an inch in diameter and the opening one-eighth of an inch. This tree is remarkable for productiveness. The fruit is of especially fine quality. It is budded on *laranja da terra* stock. (See S. P. I. Nos. 37791 and 37792)."

37784 to 37786. CITRUS sp. **Lime orange.**

From the grove of Col. João de Teive e Argollo, Agua Comprida, Bahia.

37784. "These trees are about 20 years of age, 20 feet in height, 20 feet in spread, headed about 4 feet above the ground, and with trunks 25 inches in circumference. Erect and open habit of growth. Foliage sparse, light green in

37748 to 37798—Contd. (Quoted notes by Mr. Dorsett and others.)

color; few spines; tree productive. A typical fruit weighs 350 grams, is 11 inches in circumference, 3¼ inches in diameter, the skin is one-fourth of an inch thick and core 1¼ inches in diameter. The form is oval to nearly spherical; color yellowish green when ripe. The surface is smooth, the flesh golden yellow in color. The rag is tender and the juice is abundant, a single specimen containing 125 c. c. of juice. The flavor is a mixture of that of the orange and lime, sweet and pleasant. The seeds are 2 to 8 in number. Col. Argollo says that this variety comes true from the seed. It is common in the markets of Rio de Janeiro during February and March, and is evidently highly esteemed by the Brazilians because of its pleasant, refreshing flavor. It is used extensively for making an orangeade which the Brazilians esteem more highly than that made from other citrus fruits."

37785 and 37786. See S. P. I. No. 37784 for description.

37787. Citrus limetta Risso. **Sweet lime.**

From the grove of Dr. Fortunato da Silva, Cabulla, Bahia.

"This fruit, known in Portuguese as *lima doce*, is about the size of a lemon, a typical fruit being 2¼ inches in diameter. The skin is pale green in color, externally, and slightly less than one-fourth of an inch in thickness. The core is closed and small; the juice sweet and cloying in flavor. This is a fruit that is highly esteemed by the Bahians. Its flavor is similar to that of the lime, but with less acidity. The seeds number 12. The tree is very productive."

37788 and 37789.

From the grove of Col. Frederico da Costa, Matatu, Bahia.

37788. Citrus sinensis (L.) Osbeck. **Navel orange.**

"A tree about 15 years old, 16 feet in height, 21 feet in spread, headed about 15 inches above ground, spreading in form, with a trunk 31 inches in circumference. The foliage is very dense, dark green; no spines. In the June crop there are 113 fruits, in the December crop 24, no prominent variations being apparent among them. A typical fruit is about 440 grams in weight, 12¼ inches in circumference, 4 inches in diameter, the skin is one-eighth of an inch in thickness, and the core is three-fourths of an inch in diameter. The shape is elongated, the button end slightly sunken, the blossom end slightly raised. The surface is light golden in color. The rag is very tender, and the juice is abundant, one fruit containing 150 c. c. of juice. The navel is 1 inch in diameter and the navel opening is one-fourth of an inch wide."

37789. Citrus limetta Risso. Rutaceæ. **Sweet lime.**

For description of the sweet lime, see S. P. I. No. 37787.

37790. Mangifera indica L. Anacardiaceæ. **Rose mango.**

From Roma, Bahia. See S. P. I. No. 37846 for description.

37791 and 37792. Citrus sinensis (L.) Osbeck. Rutaceæ. **Navel orange.**

From the grove of Col. Julio Barretto, Cabulla, Bahia.

37748 to 37798—Contd. (Quoted notes by Mr. Dorsett and others.)

37791. "A tree believed to be about 40 years old, but with a top much younger than this, perhaps 8 years old, as the tree has been renewed by cutting it back to the old stump. Its height is about 10 feet, its spread 12 feet, its habit drooping, its trunk 29¾ inches in circumference, and it is headed 14 inches above the ground. The foliage is dense, dark green; no thorns. In the June crop there are 139 fruits and in the December crop 35, the principal variations being in the size of the navel, which is from very small to medium."

37792. "A tree said to be more than 40 years old, about 20 feet in height, and 27 feet in spread, erect in habit, headed more than 4 feet above the ground, with a trunk 37½ inches in circumference. The foliage is sparse, dark green; no spines. In the June crop there are 234 fruits and in the December crop 139, among them being many which are flattened or wrinkled. Navels vary from medium to large in size, some of them being very large and protruding. This and S. P. I. No. 37791 are from a grove that is said to be one of the very oldest existing in Bahia. The Bahia navel orange is believed to have originated near it. Many of the trees in this grove are said to be about 40 or more years of age, but have had their tops renewed several times by cutting back to the trunk, a custom common in Bahian orchards. The orchardists generally believe that these renewed tops produce better fruit than the original tree. It appears to us that this may be due to the fact that as the trees grow older and decline in vigor and productiveness, the fruit naturally becomes smaller and poorer. By renewal its size and quality are considerably increased, equal perhaps to the fruits borne by a young tree. This 45-year-old orchard is said to be one of the most productive and profitable in Bahia."

37793. Citrus sp. Rutaceæ. **Lime orange.**

From the grove of Col. João de Teive e Argollo, Agua Comprida, Bahia. Lime orange, called in Portuguese *laranja lima*. See S. P. I. No. 37784 for description.

37794. Neoglaziovia variegata (Arruda) Mez. Bromeliaceæ. **Caroá.**
(*Billbergia variegata* Schultz.)

From Joazeiro, Brazil. Presented by Dr. Leo Zehntner, Director of the Horto Florestal, Joazeiro, Bahia.

"This plant is found in the caatingas or dry lands of the interior of Bahia State, particularly around Joazeiro. It grows to a height of 4 or 5 feet, and is conspicuous among the other plants on the caatinga because of its variegated leaves, which are deep green blotched with white. The natives harvest the wild plants, extract the fiber, and make of it ropes, baskets, hammocks, etc. One of the commonest articles made of caroá fiber is a small rope about one-fourth of an inch in diameter and 6 feet in length, which is sold in the Joazeiro markets at 100 reis (about 3 cents) and is used to string up hammocks.

"Statistics concerning the extent of the caroá industry are lacking. The plant should be worthy of a trial in the southwestern United States,

37748 to 37798—Contd. (Quoted notes by Mr. Dorsett and others.)

however, to determine its value and the feasibility of economically extracting the fiber."

Plants.

37795. CITRUS BERGAMIA Risso. Rutaceæ. **Bergamot orange.**

From Roma, Bahia. See S. P. I. No. 37779 for description.

37796. CITRUS SINENSIS (L.) Osbeck. Rutaceæ. **Orange.**

From the grove of Senhor João Elias Esteres, Nictheroy, Rio de Janeiro.

"Cuttings of *laranja selecta* from a variety which is a favorite in Rio de Janeiro, its cultivation being much more extensive than that of the Bahia navel orange. It is hard to understand why this should be, when one considers that the navel is seedless while *Selecta* contains numerous seeds. It seems to be the popular opinion, however, that *Selecta* is a better flavored orange than the navel grown in this section. *Selecta* is believed to be the parent of the Bahia navel, and there is good evidence to substantiate this belief. It is an orange of good size, about as large as a good California Washington Navel, but slightly flattened or oblate in form. The flesh is tender and juicy and of a delicious sprightly flavor, rather a contrast in this respect to the Bahia navel, which is usually lacking in acidity."

37797. CITRUS SINENSIS (L.) Osbeck. Rutaceæ. **Orange.**

From Maxambomba, Brazil.

"Cuttings of *laranja da pera* from Maxambomba, about 30 kilometers from Rio de Janeiro, on the Central Railway. This variety is called the pear orange, presumably because of its slightly elongated form. It is a smaller fruit than the *Selecta*, being more nearly comparable to the *Mediterranean Sweet*, grown in California. These cuttings are from the grove of José Maria Corres, one of the best in the region around Maxambomba. The trees are very prolific fruiters and ripen their crop about Christmas time, at almost the opposite season of the year from *Selecta*, which ripens from March or April until September. It is one of the chief commercial varieties of the region, and while rather seedy, there is an abundance of juice and little rag. The flavor is very sweet and not so refreshing as *Selecta*."

37798. CITRUS SINENSIS (L.) Osbeck. Rutaceæ. **Orange.**

"From the nursery of Eickhoff, Carneiro Leão & Co., Rio de Janeiro. Cuttings of *laranja da pera*. See S. P. I. No. 37797 for a description of this variety."

37799 to 37801.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received April 2, 1914. Quoted notes by Mr. Meyer.

37799 and 37800. CASTANEA MOLLISSIMA Blume. Fagaceæ. **Chestnut.**

From the village of Yatzeko, south of Sianfu, Shensi, China. January 20, 1914.

37799. "(No. 2006a.) A large-fruited variety of Chinese chestnut, which locally is propagated by top grafting. The trees are of low-branching habits and prefer a well-drained, decomposed

37799 to 37801—Continued. (Quoted notes by Mr. F. N. Meyer.)

rock soil, possibly at the foot of mountains. They seem to be quite resistant to the bark disease but may perhaps not be quite hardy north of Washington, D. C. Chinese name *K'uei li tzŭ*, meaning 'superior chestnut.'"

37800. "(No. 2007a.) The ordinary form of local chestnut, having rather small nuts; the trees are low branching and do not grow tall; the leaves persist on the trees till spring. Chinese name *Yin li tzŭ*, meaning 'silver chestnut.' Propagated from seed only. See remarks under Nos. 2005a and 2006a [S. P. I. Nos. 37548 and 37799]."

37801. DIOSPYROS LOTUS L. Diospyraceæ. **Persimmon.**

"(No. 2008a. Mountains near Nantotchu, south of Sianfu, Shensi, China. January 21, 1914.) The wild form of cultivated Japanese and Chinese persimmon, collected at an altitude of over 2,000 feet above sea level. Chinese name *Yeh shih tzŭ*."

See No. 1096 [S. P. I. No. 37540] for additional information.

37802. RHEEDIA BRASILIENSIS (Mart.) Planch. and Triana. Clusiaceæ. **Bakopary.**

From Rio de Janeiro, Brazil. Presented by Dr. J. C. Willis, director of the Jardim Botanico. Received April 13, 1914.

"A beautiful pyramidal tree of the family Guttiferæ, known in the State of Rio de Janeiro, Brazil, where it is indigenous, under the name of *bakopary*. As the name indicates, the fruit greatly resembles the *bakury* (*Platonia insignis—Aristoclesia esculenta*); it is somewhat smaller in size than the latter, and while not considered so delicious, is highly esteemed by the natives, particularly when prepared in the form of a *doce* or jam, when, as one authority says, it is 'a nectar.' In general form the fruit is ovate, rather sharp at the apex. In length it varies from 1¼ to 1½ inches, in width from 1 to 1¼ inches. The stem is 1½ to 2 inches in length, rather stout. When fully ripe the color is light orange yellow tinged with green. The tough, pliable skin, about one-eighth of an inch thick, surrounds the soft, translucent, snowy white pulp in which the two oblong elliptical seeds are embedded. In flavor the pulp is subacid, sprightly, strikingly similar to that of the mangosteen, though perhaps not quite so delicate.

"Deserves a trial in the warmest sections of the United States, not only for its own merits as a fruit but in connection with the mangosteen experiments. As a stock for the mangosteen it might prove of value." (*Wilson Popenoe.*)

For an illustration of the leaves and fruit of the bakopary, see Plate III.

Plants.

37803 to 37805. CITRUS spp. Rutaceæ.

Presented by Mr. James Birch Rorer, mycologist, Board of Agriculture, Port of Spain, Trinidad, through Mrs. S. T. Rorer. Received April 21, 1914.

37803. CITRUS AURANTIFOLIA (Christm.) Swingle. **Lime.**

From the island of Tobago, British West Indies.

Cuttings.

37803 to 37805—Continued.

37804. CITRUS GRANDIS (L.) Osbeck. **Alamoen.**
(*Citrus decumana* Murr.)

From Surinam.

"*Alamoen.* During the past three years I have made several trips to Surinam and have found there a fruit which they call *alamoen*, and which seems to me to be far superior to the grapefruit in flavor. So far as I can learn it is a native of that part of the world; trees are growing everywhere there and thousands of fruit rotting every year. Trees come true to seed, I have been told by various planters in Surinam." (*Rorer.*)

37805. CITRUS LIMETTA Risso. **Sweet lime.**

From the island of Tobago, British West Indies.

37806. ABELMOSCHUS ESCULENTUS (L.) Moench. Malvaceæ.

(*Hibiscus esculentus* L.) **Okra.**

From Rashida, Dakhleh Oasis, Western Egypt. Presented by Sheik Abu Bakr, through Prof. S. C. Mason, of the Bureau of Plant Industry. Received April 22, 1914.

37807. BRASSICA OLERACEA CAULO-RAPA × VIRIDIS. Brassicaceæ.

Marrow kale.

From Wordsley, Stourbridge, England. Procured from E. Webb & Sons. Received April 20, 1914.

"This is a cross between thousand-headed kale and kohl-rabi. Produces a thickened stem of a marrowy nature, and grows about 5 feet high. During the autumn the leaves should be cut and given to cattle. Later on, before severe frost sets in, gather the stems and store, safe from frost, for food supplies through the winter. The culture is similar to thousand-headed kale." (*Webb & Sons.*)

37808. EREMOCITRUS GLAUCA (Lindl.) Swingle. Rutaceæ.

(*Atalantia glauca* Benth.) **Desert kumquat.**

From Sydney, New South Wales, Australia. Presented by Mr. J. H. Maiden, director, Botanic Garden. Received April 22, 1914.

"Fresh fruits of the native lime from Collarenebri, in the northwest of this State." (*Maiden.*)

37809 to 37812.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Quoted notes by Mr. Meyer.

37809. PONCIRUS TRIFOLIATA (L.) Raf. Rutaceæ. **Trifoliate orange.**
(*Citrus trifoliata* L.)

From Sianfu, Shensi, China. Received April 2, 1914.

"(No. 2009a. January 26, 1914.) The well-known hardy trifoliate orange, quite common on the Sianfu plain on Chinese burial grounds. Sparingly used as a hedge plant, especially around old temple gardens. The plant is much used by Chinese gardeners in pot culture upon which to graft various citrus fruits and keep them dwarfed. Locally the fruits

37809 to 37812—Continued. (Quoted notes by Mr. F. N. Meyer.)

are used as fuel after having been roughly crushed and partly dried. The wood occasionally is employed in carpentering work and for tool handles and carrying poles, but it is not much thought of. The plant seems to be able to stand a great amount of drought and some alkali also, and it might prove to be of great value as a hedge plant for sections of the semiarid United States where the winters are not too severe. The fruits of this orange are often quite large and elongated near the peduncle. May possibly be a different and perhaps hardier variety than the ordinary Japanese form. Chinese name *Ch'ou ch'êng tzŭ.*"

37810. ULMUS PARVIFOLIA Jacq. Ulmaceæ. **Elm.**

From the village of Nantotchu, south of Sianfu, Shensi. Received April 14, 1914.

"(No. 2010a. January 21, 1914.) A small-leaved species of elm, growing in favorable localities into a tall tree with a heavy trunk; on dry, exposed loess cliffs, however, it remains in the nature of a tall shrub. The bark is scaly and thrown off in small patches, making the trunk and limbs quite smooth; the trees flower in late summer and the ripe fruits, together with the dead, brown foliage, are retained in sheltered spots until springtime. This elm is very drought resistant and stands a fair amount of alkali. It is much planted by the Chinese for its lumber, which is durable and tenacious and in special demand by cart builders. Of value for the mild-wintered semiarid sections of the United States as a useful lumber tree and as an ornamental tree for parks and along roads. Chinese name *Kuang kuang yü shu,* meaning 'lustrous' or 'shiny elm tree.'"

37811 and 37812. DIOSPYROS LOTUS L. Diospyraceæ. **Persimmon.**

37811. From Fuping, Shensi. Received April 14, 1914.

"(No. 2011a. February 3, 1914.) An improved variety of the ordinary *lotus* persimmon of North China, used extensively by the Chinese as a stock for their cultivated *kaki* varieties. To obtain the best results, the practice of patch budding in late spring should be followed, and the Chinese as a rule set two or three buds on the same stock, so as to make sure. This *lotus* persimmon occurs naturally in dry loess ravines, along steep edges of loess tablelands, and on pebbly and rocky inclines. It seems to be able to withstand a truly amazing amount of drought and also a fair percentage of alkali, but the trees do not thrive on low places or on lands which are not properly drained. The use of this *lotus* persimmon as a stock in America may possibly make persimmon culture successful, even in regions with a summer rainfall of 10 to 12 inches only. Local name *Juan tsao tzŭ,* meaning 'soft jujube.'"

37812. From Ishih, Shansi. Received April 4, 1914.

"(No. 2012a. February 12, 1914.) The ordinary form of the wild *lotus* persimmon, the fruits of which are a sweetmeat for children. For further information see preceding number. Local name *Juan tsao tzŭ.*"

37813 to 37818.

From Guayaquil, Ecuador. Presented by Mr. Frederic W. Goding, American consul general. Received April 11, 1914. Quoted notes by Mr. Goding, except as otherwise indicated.

37813 to 37818—Contd. (Quoted notes by Mr. F. W. Goding.)

37813. ACHRADELPHA MAMMOSA (L.) Cook. Sapotaceæ. **Sapote.**
(*Lucuma mammosa* Gaertn. f.)

"*Mamey colorado.* A fruit about the size of a teacup, resembling a potato in general appearance, the skin being rough, dark greenish brown, mottled with sordid yellow. The edible portion is red, soft, sweet, with a peculiar but pleasant flavor, in the center of which is a shuttle-shaped seed about 2 inches long, of a chestnut-brown color and always apparently split along one side; within the hard, thin, shining shell is a white kernel. These fruits are produced by large trees common throughout the warm coastal region of Ecuador, whence they are brought, in quantities, by the natives to the Guayaquil markets. In Mexico are to be found fruits bearing similar names, but widely differing otherwise."

37814. MAMMEA AMERICANA L. Clusiaceæ. **Mammee.**

"*Mamey cartajina*, also called *mata serrano*, in general appearance resembles the *colorado*. The edible part, however, is rather hard like that of the squash, in which are to be found two large, rough nuts flattened on one side, but otherwise rounded, the flat surfaces lying together, inside being the kernel. The hard exterior of the nut is grated by the natives and used to kill fleas; when applied to infested dogs the parasites leave the animal at once. This fruit is used locally only for making an excellent jam. These fruits are produced by large trees common throughout the warm coastal region of Ecuador, whence they are brought, in quantities, by the natives to the Guayaquil markets. In Mexico are to be found fruits bearing similar names, but widely differing otherwise."

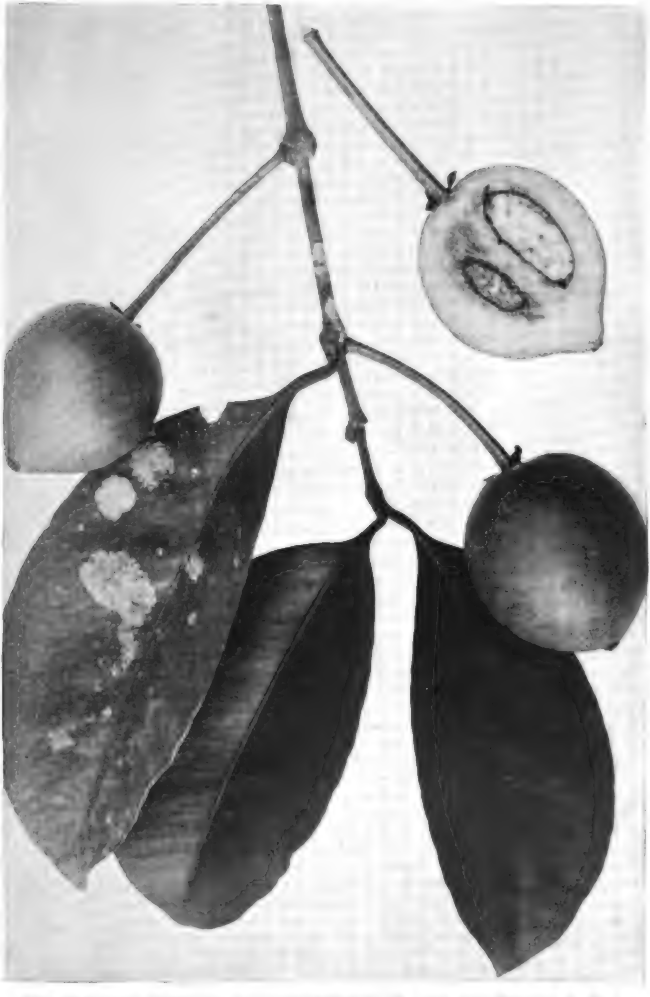
37815. (Undetermined.)

"*Zapote.* This fruit outwardly resembles a round summer squash, the smooth skin being pale greenish, hard, and thick. The inside is deep orange yellow, stringy, not unlike the interior of a mango in appearance and taste, and incloses four or five long, more or less three-cornered nuts with leathery skin to which the stringy pulp firmly adheres, within being the kernel. These fruits are produced by large trees common throughout the warm coastal region of Ecuador, whence they are brought by the natives, in large quantities, to the Guayaquil markets. In Mexico are to be found fruits bearing similar names, but widely differing otherwise."

37816. TRIPHASIA TRIFOLIA (Burm. f.) P. Wilson. Rutaceæ.
(*Triphasia aurantiola* Lour.)

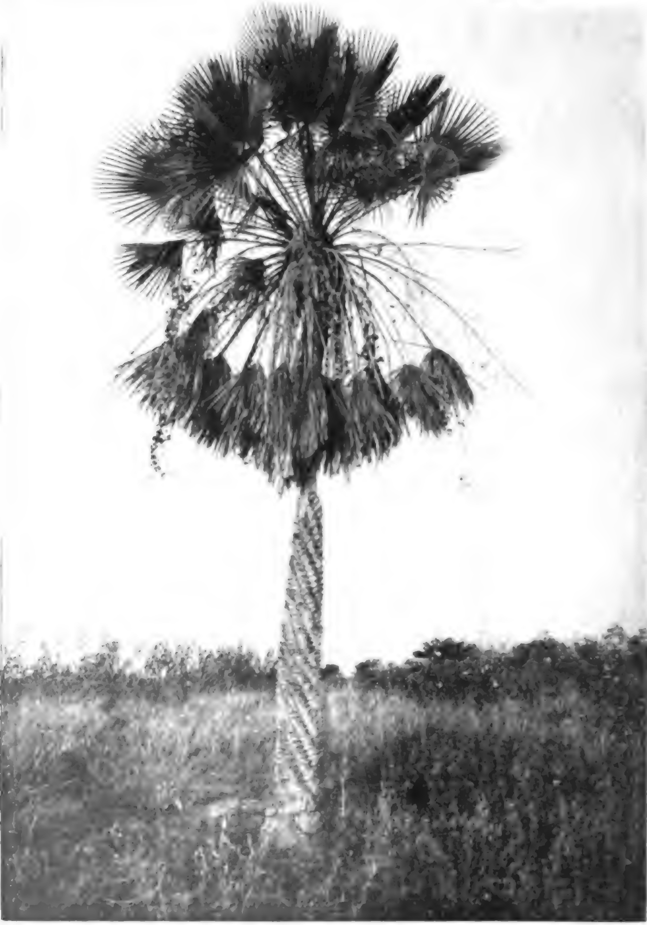
"*Limoncillo.* Grows on a bushy shrub about 6 feet high, with several stems. It is used in making jams and other preserves."

"This is a spiny shrub, having leaves composed of three egg-shaped leaflets, notched at the top; its flowers are white and sweet scented and usually grow singly in the leaf axils, producing 1 to 3 celled berries, containing a single seed surrounded with pulp in each cell. They have a trilobed calyx, as many petals, six distinct stamens, and an ovary elevated on a short stalk and ending in a longish thick style which ultimately falls away. It is a native of southern China, but it is now naturalized in many parts of the East Indies, and is also cultivated in the West Indies. Its fruits are about as large as hazelnuts and have a red skin. When ripe they have an agreeable sweet taste, but if gathered



THE BAKOPARY (RHEEDIA BRASILIENSIS (MART.) PLANCH. AND TRIANA), S. P. I. No. 37802.

The bakopary, native of the State of Rio de Janeiro, Brazil, and occasionally planted in gardens, is a handsome ornamental tree and produces bright-yellow fruits with translucent, white flesh. The flavor is subacid, delicate, and spicy, strongly suggestive of the mangosteen, to which it is related and for which it may prove a good stock. (Photographed at Rio de Janeiro by Messrs. Dorsett, Shamel, and Popenoe, January 2, 1914; natural size; P15415FS.)



THE CARNAUBA PALM (COPERNICIA CERIFERA MARTIUS), S. P. I. No. 37866.

An interesting and valuable Brazilian fan palm found in abundance in the valley of the Rio Sao Francisco, both scattered and in comparatively large groves. The trees attain a diameter of 12 inches or more and a height of 20 to 30 feet. The trunks are used for fence posts and in house construction. The nuts are highly prized for hog feed. Candles made from the wax exuding from the leaves, which is much harder than tallow or paraffin, are dark yellowish brown in color and burn with a clear, yellow, fairly brilliant flame. The wax industry, which was formerly prosperous in this region, is not now very remunerative, owing primarily, it is said, to the fact that extensive landowners have prohibited the cutting of the leaves. (Photographed at Sento Se, Brazil, by Messrs. Dorsett and Popenoe, February 20, 1914; P14910FS.)

37813 to 37818—Contd. (Quoted notes by Mr. F. W. Goding.)

green they have a strong flavor of turpentine, and the pulp is very sticky. They are sometimes preserved whole in sirup and occasionally sent to this country from Manila as lime berries." (*Lindley, Treasury of Botany, vol. 2, p. 1173.*)

37817. PUNICA GRANATUM L. Punicaceæ. **Pomegranate.**

"*Granada.* The tree attains a height of 10 to 15 feet, and a diameter of 2 to 3 inches. The fruit is used for the table and for flavoring."

37818. ANNONA SQUAMOSA L. Annonaceæ. **Sweetsop.**

"This fruit also grows on a tree some 12 to 15 feet high. The fruit is delicious for table use, much more so than the *cherimoya*."

37819. MAURITIA VINIFERA Martius. Phœnicaceæ. **Burity palm.**

From Januaria, Minas Geraes, Brazil. Collected by Messrs. Dorsett, Shamel, and Popenoe, of the Bureau of Plant Industry. Plants received April 13, 1914.

(No. 72. February 14, 1914.) The Burity palm. See No. 32873 for previous introduction and description.

37820 and 37821. PELARGONIUM spp. Geraniaceæ. **Geranium.**

From Kew, England. Presented by Sir David Prain, director, Royal Botanic Gardens. Cuttings received April 16, 1914.

37820. PELARGONIUM CAPITATUM (L.) L'Herit.

For previous introduction see S. P. I. No. 31957.

37821. PELARGONIUM RADULA (Cav.) L'Herit.

For previous introductions see S. P. I. Nos. 31965 and 31966.

Var. *major.*

37822 to 37869.

From Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received April 13, 1914. Quoted notes (except as otherwise indicated) by Messrs. Dorsett, Shamel, and Popenoe.

37822. OPUNTIA sp. Cactaceæ. **Prickly-pear.**

From Sao Joao del Rey, Minas Geraes.

"(No. 64. January 26, 1914.) Cuttings taken from plants in a back yard in the edge of town. Quite common here."

37823. CEREUS JAMACARU DC. Cactaceæ. **Cactus.**

From Januaria, Minas Geraes.

"(No. 65. February 14, 1914.) *Mandacaru de boi*, growing 25 or 30 feet high. Said to produce an edible fruit, and the wood is commonly used in building. Several large plants were seen here."

Cuttings.

37824 to 37828. OPUNTIA spp. Cactaceæ. **Prickly-pear.**

Cuttings of the following:

37824. "(No. 66. Morrinhos, Minas Geraes. February 16, 1914.) Low-growing cactus called *palma*, said to produce very good fruit. Found on the hillside just back of the old church."

37822 to 37869—Contd. (Quoted notes by Mr. Dorsett and others.)

37825. "(No. 67. Bom Jesus da Lapa, Bahia. February 23, 1914.) Collected on the side of the hill of solid rock which lies at the edge of town."

37826. "(No. 68. Joazeiro, Bahia. February 23, 1914.) From the Ilha do Fogo in the Rio Sao Francisco. Called *palma* by the natives."

37827. "(No. 70. Joazeiro, Bahia. February 24, 1914.) Two pads of nearly spineless Opuntia growing along the fence of the Horto Florestal."

37828. "(No. 71. Bom Fim. March 27, 1914.) Pads of a quite common spiny variety, secured a mile or two out of town on the hillside in the campo."

37829 to 37850.

From Rio de Janeiro. Plants purchased of Eickhoff, Carneiro Leão & Co.

37829. MYRCIARIA EDULIS (Vell.) Skeels. Myrtaceæ. **Cambucá.**
(*Eugenia edulis* Vell.)

"The *cambucá*, a native of the State of Rio de Janeiro, Brazil, and commonly cultivated in gardens for its highly appreciated fruit. In growth the tree is very similar to the jaboticaba, the leaves being considerably larger, however, and the bark a darker shade of brown. A row of fine specimens in the Jardim Botanico bears the garden number 58. The fruits are produced both on the small limbs and on the trunk, though the specimens we have seen do not fruit clear down to the ground, as the jaboticaba frequently does. The season is from February to May in this region.

"In form the fruit is oblate, 1½ inches in length, and 2 inches in breadth; stem, practically none, the fruits being sessile, or nearly so; base flattened, cavity none; apex flattened, calyx persistent, a very small, brown disk not over one-eighth of an inch in diameter, level with the surface of the fruit; skins smooth, orange yellow in color, thin, tenacious, fairly tough; flesh divided into two portions, the firm outer flesh one-fourth of an inch thick, leathery, very acid in taste, light orange in color, the inner flesh, constituting the edible portion of the fruit, being soft, jellylike in consistency, translucent, light orange in color, subacid in flavor, greatly resembling some of the passifloras, quite pleasant, and evidently highly esteemed by the Brazilians; seed oval or nearly so, compressed, about seven-eighths of an inch in length, three-fourths of an inch in breadth, and seven-eighths of an inch in thickness, the cotyledons light purple in color, seed coat deep brown, reticulated, not adhering very closely to the flesh. For trial in Florida and southern California."

37830 to 37832. EUGENIA spp. Myrtaceæ.

37830. EUGENIA CAMPESTRIS Velloso. **Cambuhy da India.**
(*Eugenia arrabidae* Berg.)

"A small, highly ornamental tree, native of Brazil. It is commonly known as *Cambuhy da India* or *Uvaia do campo*. The leaves are small, linear lanceolate, opposite, deep green in color. The flowers, which are produced in September, are axillary and terminal, and are followed by small, yellow, rather acid fruits which are appreciated by the natives. The bark is said to be astringent and aromatic. For trial in southern Florida and southern California."

37831. EUGENIA MYRCIANTHES Niedenzu.
(*Eugenia edulis* Benth. and Hook. not Vell.)
Cereja do Rio Grande.

"The *cereja do Rio Grande*, a small tree native of Brazil, with small, oblong, acute, dark-green leaves, producing in June oblong, purplish red fruits about the size of an olive, with greenish flesh. It is said to bear prodigiously. The fruits are rather hard when ripe, and for this reason are usually mashed into a paste before being eaten. For trial in southern Florida and southern California."

37832. EUGENIA SPECIOSA Cambess.

"A Brazilian myrtaceous fruit listed by Eickhoff, Carneiro Leão & Co. under this name. It is said to be of value for its fruit. For trial in southern Florida and southern California."

"A large much-branched tree, indigenous to the State of Sao Paulo, in Brazil. The leaves are petiolate, elliptic or obovate elliptic, obtuse, pubescent when young, but at length glabrate. The flowers are borne upon solitary peduncles in the axils of the leaves; petals obovate, concave, pellucid punctate, ciliolate. The fruit of this species is edible but is little known, and a good description is lacking." (*Cambessedes. In St. Hilaire, Flora Brasiliae Meridionalis, vol. 2, p. 1351, 1829.*)

37833. GENIPA AMERICANA L. Rubiaceæ. **Genipap.**

"A large tree, native of the American Tropics. In the British West Indies it is called *genipap;* in Brazil, *genipapo*. At Bahia it is very common, and during the season the markets are full of the fruit. Some of the finest specimen trees we saw were fully 60 feet in height, symmetrical and stately in appearance, but devoid of foliage for a part of the year, as the species is deciduous in this climate. The leaves are a foot or more in length, oblong obovate, sometimes entire, sometimes more or less dentate, dark green in color. The flowers, which are produced in November, are small and light yellow in color. The fruits are the size of an orange, broadly oval to nearly spherical in form, russet brown in color. After being picked they are not ready to be eaten until they have softened and are bordering on decay. A thin layer of granular flesh lies immediately under the tender membranous skin, and inclosed by this is a mass of soft, brownish pulp in which the numerous small, compressed seeds are embedded. It is difficult to eat the pulp without swallowing the seeds. The flavor is characteristic and quite pronounced; it may be likened, perhaps, to that of dried apples, but it is somewhat stronger and the aroma is considerably more penetrating.

"Besides being eaten in the fresh state, the fruit is put to numerous other uses, one of the most important of which is the manufacture of a distilled liquor known as *licor de genipapo*. This article retains the peculiar and distinctive flavor of the ripe fruit

37822 to 37869—Contd. (Quoted notes by Mr. Dorsett and others.)

and is highly esteemed by the Brazilians. Its manufacture is carried on commercially in certain regions. A refreshing drink, known as *genipapada*, is also prepared from the ripe fruit, with the addition of sugar and water, much as lemonade is made in the United States.

"A dye is extracted from the green fruit which, according to Barbosa Rodrigues, is employed by the Mundurucu Indians for tattooing. It is also used for coloring clothes, straw, hammocks, etc.

"Various medicinal uses are attributed to the genipap by the Brazilians; the root is said to be purgative and the juice of the fruit diuretic. For trial in southern Florida and southern California."

37834. CAMPOMANESIA FENZLIANA (Berg) Glaziou. Myrtaceæ. **Guabiroba.**

"A small Brazilian myrtaceous tree with foliage remarkably similar to that of some of the European oaks. The common name, *guabiroba*, which is applied to it, is also given, with various minor variations, such as *gabiroba* and *guabiraba*, to several fruits of the two allied genera Abbevillea and Campomanesia.

"Although occasionally reaching a height of 30 or 35 feet, the guabiroba, as commonly seen in gardens, is a tree of 20 or 25 feet in height, rather sparsely foliated, with elliptical-ovate entire leaves about 2 inches in length, the veins depressed on the dorsal surface, prominent on the ventral surface.

"The fruits greatly resemble small guavas; they are from three-fourths to 1 inch in diameter, oblate in form, the apex crowned by a large disk and prominent 5-parted calyx. In color they are orange yellow when fully ripe, the surface slightly wrinkled and covered with a thick tomentum or down. The skin is thin, and surrounds a layer of granular, light-yellow pulp which incloses the seeds and the soft pulp in which they are embedded. The flavor is similar to that of the guava, but frequently a little stronger. The principal use to which the fruits are put is the manufacture of jams and jellies.

"According to Padre Tavares, there are four varieties of this species, but they are not well known.

"The tree seems likely to prove suitable for cultivation in southern Florida and southern California. It should be given a trial in these regions."

37835. PSIDIUM GUAJAVA L. Myrtaceæ. **Guava.**

"The *Goiaba roxa*, or purple guava, a selected variety of the common tropical guava which is cultivated in Rio de Janeiro. It is said to be of superior size and quality and should be given a trial in Florida."

37836. EUGENIA DOMBEYI (Sprengel) Skeels. Myrtaceæ.
(*Eugenia brasiliensis* Lam.) **Grumichama.**

"The *grumixama* or *grumichama*. See S. P. I. No. 36968 for description. For trial in Florida and California."

37837 to 37839. MYRCIARIA sp. Myrtaceæ. **Jaboticaba.**

For general information concerning the jaboticaba, see S. P. I. No. 36702.

37822 to 37869—Contd. (Quoted notes by Mr. Dorsett and others.)

37837. "*Jaboticaba murta.* One of the commonest varieties (or species) of the jaboticaba both in Rio de Janeiro and the State of Minas Geraes. The most noticeable difference between it and the other principal variety, *coróa*, is the smaller size of the leaves. Ordinarily the leaves of *murta* are not over 1 inch in length. The fruit is said to be about the same as that of *coróa*.

"It is impossible, at the present time, to determine the actual status of this and other varieties of the jaboticaba. There is great need of a careful study of the species and varieties of Myrciaria to throw some light on the subject."

37838. "*Jaboticaba de cabinho* or *de Para.* While this variety of jaboticaba is offered by one nursery firm, no data concerning it was obtainable. It is said to be of very good quality."

37839. "*Jaboticaba coróa.* This and *murta* are the two commonly recognized varieties of jaboticaba in Rio de Janeiro and Minas Geraes. The leaves of the *coróa* are 2 inches in length, about twice the size of those of *murta*. There is said to be very little difference in the fruits of the two."

37840 to 37845. CITRUS SINENSIS (L.) Osbeck. Rutaceæ. **Orange.**

37840. "*Laranja selecta.* This unusually choice orange is one of the two principal varieties grown in the Rio de Janeiro district and has the added distinction of having been, as all the evidence indicates, the parent of the Bahia navel orange, or *Selecta de umbigo*, as it is still called, whose culture in California at the present day forms so important an industry.

"The origin of the *Selecta* orange is obscure. It has been cultivated in Brazil for more than a century, and although it has been superseded in Bahia by its offspring, the navel orange, it is still cultivated commercially near Rio de Janeiro, particularly in the Sao Goncalo district at Nictheroy. The main crop ripens in July, but it commences to come into the market in March and continues until October. On the fancy-fruit stands it brings 2 to 3 milreis (65 cents to $1) per dozen, but in the public market it can be purchased at a considerably lower price. Around Nictheroy the fruit is picked and brought to the market in baskets strapped across the backs of mules or horses.

"The typical *Selecta* differs from the Bahia navel in form and in the absence of a navel, with the accompanying presence of seeds. In other points the two varieties are very similar. The typical *Selecta* as found in the markets may be described as follows: General form roundish oblate; cross section regularly round; size medium large, good specimens being 3 to 3½ inches in length and 3¼ to 3½ inches in breadth; stem sometimes inserted slightly obliquely; base usually tapering very little, flattened for a distance of one-half to three-fourths of an inch from the stem insertion, sometimes slightly rough, due to thickening of the skin; cavity none or practically none; apex flattened and frequently depressed for a distance of half an inch from the stigmatic point; surface varying from

37822 to 37869—Contd. (Quoted notes by Mr. Dorsett and others.)

smooth to rather coarsely pitted; color varying from yellowish green to greenish yellow early in the season, becoming entirely yellow later and bright orange-yellow when fully ripe; skin one-eighth to one-fourth of an inch thick, usually thickest around the base of the fruit, the oil glands large and abundant; segments 11 to 13, rag extremely tender, but core rather large, frequently one-fourth of an inch in diameter at the center of the fruit, usually solid; flesh light orange, tender, very juicy; flavor never mawkish or insipid, always sprightly, subacid, with plenty of character, probably as good as the Bahia navel, and with greater acidity; quality very good; seeds variable in number, ranging from 1 to 20, but commonly about 12 perfect ones and 6 abortive or undeveloped ones, in size rather large, varying from one-fourth to one-half an inch in length.

"It is common to find rudimentary navels in *Selecta* oranges from trees which ordinarily produce normal fruits. This phenomenon is so common that in some lots of fruit examined in the Rio de Janeiro markets as many as 10 per cent showed rudimentary navels in varying stages of development. In some instances the navels are as large as in an average navel orange.

"Natives of Rio de Janeiro generally consider the *Selecta*, as grown in that locality, superior to the navel orange as grown in Bahia. The Bahians, of course, do not admit this, but the fact remains that *Selecta* as grown in Rio de Janeiro is somewhat more highly flavored than the Bahia navel. For this and other reasons it seems important that *Selecta* be given a thorough trial in the orange-growing sections of the United States."

37841. "*Laranja selecta branca.* The white *Selecta* orange, a subvariety of the commercially important *laranja selecta*, propagated by the firm of Eickhoff, Carneiro Leão & Co. As yet it does not appear to be widely distributed, and we have had no opportunity to examine specimens of its fruits. It is said to be a desirable form and should be given a trial along with *laranja selecta.*"

37842. "*Laranja selecta rajada.* Another subvariety of the *Selecta* orange, of which no description is available. For trial in the orange-growing sections of the United States."

37843. "*Laranja da pera.* This variety is distinguishable from *Selecta* by its elongated form, smaller size, thinner skin, and sweeter flavor. It is extensively cultivated in the vicinity of Rio de Janeiro, especially at Maxambomba and in the neighborhood of Cascadura. It is not pyriform in shape, as the name 'pear orange' would indicate, but is usually oval, and as seen in the markets is rarely more than 3 inches in diameter. Ripening at the opposite season of the year from *Selecta*, the two do not usually compete in the markets.

"The typical fruit may be described as follows: Form broadly oval to nearly spherical; cross section round; size medium small, length 2¼ inches to 3½ inches, diameter 2½ to 3¼ inches; stem inserted squarely; base rounded, cavity none

37822 to 37869—Contd. (Quoted notes by Mr. Dorsett and others.)

or practically none; apex rounded; surface smooth; color when fully ripe bright orange; skin one-eighth of an inch thick, pliable, oil glands rather small; segments commonly 10; rag rather tough, core open, one-fourth to three-eighths of an inch in diameter; flesh golden yellow, tender, exceedingly juicy; flavor sweet, apt to be cloying when the fruit is very ripe; quality good; seeds averaging 8 to 10, small to medium size.

"While most abundant in the markets about Christmas time, the season commences in late September or October and extends to the end of January. The variety is an extremely prolific bearer—quite a contrast in this respect to *Selecta*, whose bearing habits are like those of the Bahia navel orange. The branches of *Pera* trees are not infrequently so heavily laden with fruits that they have to be propped to prevent them from breaking.

"One of the finest groves of this variety seen in the vicinity of Rio de Janeiro is that of Shr. Cezar Augusto Henriques, at Maxambomba. The trees here are all budded on the sour orange (*laranja da terra*), the commonest stock in this region and generally considered the best; at 4 years of age the budded trees produce on an average 500 fruits per tree, according to the statement of the owner. The usual price obtained for the fruits is 5 milreis (about $1.60) per hundred. The orchard is situated on a hillside, the soil being rich clay loam, grayish in color. No deep cultivation is given the trees, but the surface is frequently hoed to keep down weeds.

"The variety should be given a trial in the orange-growing sections of the United States to determine its quality and value, as well as its season of bearing, under different climatic conditions."

37844. "*Laranja natal* (Christmas orange), as the name indicates, is so named because it ripens at Christmas time. In general appearance the variety is strikingly similar to *laranja pera*, so much so, in fact, that closer acquaintance may prove it to be *Pera* under another name. Its bearing habits are the same, and the fruits of both to the casual observer are identical in appearance. At Maxambomba, where large orchards of *Pera* are located, this variety does not appear to be grown; at Nictheroy, on the other hand, *Pera* does not seem to be common, *Natal* taking its place; all of which suggests that it may be known in the two different localities under different names. For trial in the orange-growing sections of the United States."

37845. "The so-called *laranja verticillata*, a variety grown by Eickhoff, Carneiro Leão & Co. The leaves show the greatest variation in form and size, making the variety of interest to plant breeders. The fruit is of good size, but is considered of poor quality. For cultivation by those interested in the breeding of citrus fruits."

37846 to 37848. MANGIFERA INDICA L. Anacardiaceæ. **Mango.**

37822 to 37869—Contd. (Quoted notes by Mr. Dorsett and others.)

Plants of the following:

37846. "*Manga da rosa*, or 'Rose mango,' a fruit of good size and attractive appearance, is extremely popular in the markets of Rio de Janeiro during the holiday season, when single specimens sell from 2 to 2½ milreis, the equivalent of 65 to 80 cents. Most of the fruits marketed in Rio de Janeiro are shipped down from the vicinity of Pernambuco, where the variety is said to be extensively grown. It is also grown at Bahia, and to a limited extent at Rio de Janeiro, but is not considered to reach such a high state of perfection in the latter region as it does farther north.

"As seen in Bahia and Rio de Janeiro, the typical fruit of this variety may be described as follows: General form compressed oval, tending to cordate, cross section oval; size medium large, weight 480 grams, length 4⅝ inches, breadth at widest point 3⅛ inches; stem insertion oblique, stem long, rather slender; base slightly flattened, cavity shallow, flaring, somewhat irregular; ventral shoulder very broad and rounded, usually high; dorsal shoulder less prominent, sometimes falling; apex very slightly beaked, but not sharp, nak 1 inch above the longitudinal apex, a small depression; surface smooth, color rich golden yellow tinged with salmon, one side of fruit overspread with bright rose red, varying to salmon red or flame red; dots and marblings subcutaneous, slightly lighter in color than surface; skin one-sixteenth of an inch in thickness, adhering rather closely, tough and firm, making the fruit a good shipper; flesh 1 inch thick on shoulder, slightly less on body of fruit, deep yellow in color, very little aroma, very juicy, firm and meaty, but rather fibrous, particularly near the ventral and dorsal edges of the seed; flavor sweet, slightly aromatic, but not so spicy and sprightly as in some of the better Indian mangos; quality good; seed large, 3¼ inches long, 2 inches broad at widest point, about five-eighths of an inch thick, oblique, pointed at apical end, polyembryonic, fibrous over its entire surface but especially on edges, where the fibers are 1 inch long; season at Bahia December to late January.

"*Manga da rosa* is generally believed to have been introduced into Brazil from Mauritius. It is propagated by inarching, 2-year old grafted trees selling at the equivalent of $2.35 to $3.35 each. Because of its unusually handsome appearance and admirable shipping and keeping qualities it seems worthy of a careful trial in southern Florida."

37847. "*Carlota*. One of the few grafted varieties of mango cultivated in Brazil. It is known both at Rio de Janeiro and at Bahia. While rather small in size, it is of good flavor and less fibrous than many Brazilian mangoes. As seen in the garden of Dr. Antonio Calmon do Pin e Almeida, on the island of Itaparica, near Bahia, it may be described as follows: General form roundish oblate, compressed laterally, cross section ovate; size medium small, length 3 inches, breadth 3½ inches, thickness 2¾ inches; stem inserted squarely or nearly so; base flattened, slightly sunken on ventral side of stem and raised on dorsal side, cavity practically none; dorsal shoulder rounded; ventral shoulder very broad, level; apex blunt, nak three-eighths of an inch above the longitudinal apex, slightly sunken; surface smooth, dull orange yellow in color, tinged with green; dots numerous, subcutaneous, small, rounded, lighter in color than surface; skin medium thick, firm and tough, adhering closely; flesh bright orange in color, aroma pronounced and agreeable, juicy, firm, slightly fibrous; flavor rich, fairly spicy, sweet; quality good; seed oblong, apparently monoembryonic, 2⅝ by 1¾ by 1 inch, fiber long on ventral edge, elsewhere short and fine; season December to January. Considered worthy of a trial in the mango-growing sections of Florida."

37848. "*Augusta.* A small mango, but one of the few varieties propagated in Brazil by inarching or grafting. As seen growing in the garden of Dr. Antonio Calmon do Pin e Almeida, on Itaparica Island, near Bahia, it may be described as follows: General form obliquely oval; cross section oval; size small, length 2¾ inches, breadth 2½ inches, thickness 2 inches; stem inserted obliquely; base obliquely flattened, cavity practically none; dorsal shoulder rounded, low; ventral shoulder rounded, high; apex rounded, nak five-sixteenths of an inch above the longitudinal apex, a slight depression; surface smooth, green yellow in color, tinged and overspread with orange on cheek; dots numerous, subcutaneous, small, rounded, lighter in color than surface; skin thick, firm and tough, adhering closely; flesh pale orange in color, very juicy, aroma pleasant but not pronounced; flavor subacid, not very aromatic; seed large for size of fruit, ovate reniform, 2¼ by 2¼ by 1 inch, very fibrous over entire surface, monoembryonic; season December to January. For trial in the mango-growing sections of Florida."

37849. PANICUM BARBINODE Trinius. Poaceæ. **Angola grass.**

"*Capim de Angola*, or 'Angola grass,' of the variety cultivated at Rio de Janeiro. M. Pio Corrêa considers this a forage crop of ordinary value, but states that in some sections of Brazil it is highly esteemed."

37850. STENOTAPHRUM SECUNDATUM (Walt.) Kuntze. Poaceæ. **Shore-grass.**

"A broad-leaved grass, of which there are two varieties, one self-colored and one variegated. Both are extensively employed in Rio de Janeiro as lawn grasses, and while rather coarse for this purpose, they seem to be better adapted to the climatic conditions than many other lawn coverings which are planted."

37851 to 37853. OPUNTIA spp. Cactaceæ. **Prickly-pear.**

37851. "(No. 138a. Morrinhos, Minas Geraes, Brazil. February 16, 1914.) An almost thornless species common on the rocky hillside back of town. Fruit said by the natives to be very good. Cuttings obtained and plants photographed."

Plant of No. 66 [S. P. I. No. 37824].

37822 to 37869—Contd. (Quoted notes by Mr. Dorsett and others.)

37852. "(No. 159a. Joazeiro, Bahia, Brazil. February 23, 1914.) A small cactus on the Ilha do Fogo in the Rio Sao Francisco between Joazeiro and Petrolina. Pads flat, small, almost spineless. Called *palma* by the natives."

Plant of No. 68 [S. P. I. No. 37826].

37853. "(No. 189a. Joazeiro, Bahia, Brazil. February 24, 1914.) Seed of a nearly spineless opuntia from Horto Florestal."

Plant of No. 70 [S. P. I. No. 37827].

37854 to 37860. ORYZA SATIVA L. Poaceæ. **Rice.**

37854. "(No. 117a. Pirapora, Minas Geraes, Brazil. February 9, 1914.) Taken from a spot in the field where the thrasher had stood in the previous year and where the plants were twice as tall as in other parts of the field. From the fazenda of Col. Caetano Mascarenhas."

37855 to 37857.

From Rio de Janeiro, Brazil. March 23, 1914. Seed from Naples, Italy.

37855. "(No. 206a.) Called *Louro do Japão.* (Japanese golden)."

37856. "(No. 208a.) Called *Kitaima do Japão.*"

37857. "(No. 209a.) Var. *branco*, or white."

37858. (Pirapora, Minas Geraes, Brazil. February 9, 1914. One head taken from specimen No. 358b [S. P. I. No. 37854].)

37859 and 37860.

"(Bahia, Brazil, December 18, 1913. Single heads taken from specimen No. 114b.) Specimens taken from rather dry upland, on the estate of Col. João Argollo, Agua Comprida, near Bahia. Cultivated on a small scale only."

37859. A. Length of head 10¾ inches.

37860. B. Length of head 9 inches.

37861 to 37865. SPONDIAS TUBEROSA Arruda. Anacardiaceæ. **Imbu.**

37861 and 37862. From Januaria, Minas Geraes, Brazil, February 15, 1914.

37861. "(No. 128a.) Seeds of the *imbu* or *umbu*, one of the most popular fruits of this region. The tree, which is wild here and quite common in some places, is of a peculiar habit of growth, branching 4 to 6 feet above the ground and forming a very broad, dense, and flat-topped head of foliage. When the large limbs are cut and placed in the ground as fence posts, they take root and grow. The fruits, which are sometimes produced in great profusion and are ripe at this season, are oval in form, about 1¼ inches in length, and light green in color. The skin is rather tough, and incloses the translucent, juicy pulp in which is embedded the single large seed. The flavor of the pulp is rather suggestive of a sweet orange, and is agreeable in the extreme. Aside from being consumed in the fresh state, the fruit is extensively used for the manufacture of jellies and jams, in which a considerable trade has been built up. In addition, a popular dessert called *imbuzada* is made from the slightly unripe fruit by mixing the strained and sweetened pulp with milk. The ease of its culture, together with the superiority of its fruit, recommends the *imbu* for careful trial in Florida and California."

37862. "(No. 133a.) The *imbu*. See 128a [S. P. I. No. 37861] for description. Seeds procured from boys who picked them up off the ground where they had been discarded after the fruit was eaten. Seeds may not all grow; a few appeared to be old."

37863. "(No. 149a. Remanso, Brazil. February 20, 1914.) For description, see No. 128a [S. P. I. No. 37861]."

37864. "(No. 157a. Joazeiro, Bahia, Brazil. February 23, 1914.) Seed of the *imbu*, picked up along the bank of the river where the fruits had been eaten and the seeds dropped. See No. 128a [S. P. I. No. 37861] for description."

37865. "(No. 223a. Bom Fim, Bahia, Brazil. February 27, 1914.) Seeds collected on the streets of Bom Fim, where they had been dropped by the natives after eating the fruit. See No. 128a [S. P. I. No. 37861] for description."

37866. COPERNICIA CERIFERA Martius. Phœnicaceæ.

Carnauba palm.

"(No. 182a. Joazeiro, Bahia, Brazil. February 24, 1914.) Seeds of the *carnahuba*, a valuable wax palm found along the banks of the Rio Sao Francisco from well above Barra to below Joazeiro. In places it grows in great abundance, forming large groves along the banks of the stream. The leaves are fan shaped, rather finely cut, about 2 to 3 feet in diameter, light green in color. The plant frequently attains a height of 25 to 30 feet. The wax is extracted by cutting the leaves and drying them in the sun, when the wax exudes in the form of a powder. Candles made from it are yellowish brown in color, extremely hard, and burn with a clear yellow, fairly brilliant light. They sell for 40 reis (1.2 cents) each, but very few are made nowadays and they are difficult to obtain. The fruit is valued for hog feed and many of the large landowners are preserving the trees for the production of fruit. The trunks are extensively employed in building houses. The wax industry was formerly prosperous in this region, but is not now very remunerative, and only small quantities are exported. The leaves are used for brooms, etc. For trial in Florida and California."

For an illustration of the carnauba palm tree, see Plate IV.

37867. COCOS CORONATA Martius. Phœnicaceæ. **Nicuri palm.**

"(No. 217a. Bahia, Brazil. March 18, 1914.) Seeds of the nicuri palm. See No. 29a [S. P. I. No. 36927] for description."

37822 to 37869—Contd. (Quoted notes by Mr. Dorsett and others.)

37868. ATTALEA FUNIFERA Martius. Phœnicaceæ. **Piassava palm.**

"(No. 218a. Bahia, Brazil. March 20, 1914.) A large, pinnate-leaved palm, found in certain sections of the State of Bahia. It is valuable because of the fiber which it furnishes, as well as for its hard, black fruits, which are used to make buttons. The oily kernel, elliptical and nearly 2 inches in length, is used as an article of food by the natives of the poorer classes. Piassava fiber is an important article of export at Bahia, and the manufacture of piassava brooms forms an industry of considerable extent. The fiber is extracted from the leaf stalks, and is coarse, stiff, cinnamon brown in color. For trial in the warmest sections of the United States."

37869. ELAEIS GUINEENSIS Jacq. Phœnicaceæ. **Dendé palm.**

"Bahia, Brazil. Seeds of the dendé palm. See No. 39a [S. P. I. No. 36973] for description."

37870 and 37871. PANAX QUINQUEFOLIUM L. Araliaceæ.
(*Aralia quinquefolia* Decne. and Planch.) **Ginseng.**

From Peking, China. Presented by His Excellency Ts'ao Julin, twice Minister for Foreign Affairs, through Dr. Paul S. Reinsch, American minister, Peking, China, at the request of Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received April 18, 1914.

"Kwantien and six other places in Fengtien Province have always been famous for the cultivation of ginseng. There are two varieties—'Mountain ginseng' (*Shan shên*) and 'Garden ginseng' (*Yüan shên*). Mountain ginseng is popularly known as 'Great Mountain ginseng' (*Ta shan shên*), or 'stick' (*Pang chi*). The popular name of 'Garden ginseng' is 'Sprouting ginseng' (*Yang shên*).

"'Mountain ginseng' is cultivated at high altitudes. The length of the root in the soil is over 2 feet. The stalk puts forth branches. The plant commences to grow in the spring and ceases in the autumn. It is not injured either by drought or by floods, and is consequently easy to cultivate.

"'Garden ginseng' has always been grown on shady slopes and in black earth. Every year at harvest time the seeds are stripped off and soaked in clear water. The outer skin is rubbed off and the seeds dried in the sun. They are then mixed with clean earth and placed on the ground. At the end of a year they are taken out and replanted. In the second year they will put forth buds, and in the fourth they will bear seeds.

"If, after stripping off the seeds, it is not desired to plant them the coming year, the soaking process should be omitted and the seeds left in their skins and wrapped up and placed in a high place, out of reach of the least dampness. They may then be left for any number of years. When planted they should be left in their skins in 2 inches of earth. After two years they will begin to put forth buds, and after four years they will bear seeds. But after first being planted they should be covered with mats and kept moist by fine rain." (*Ts'ao Julin.*)

37870. "Seeds of the wild ginseng from Tunghwahsien, located in Hsingking Subprefecture, Shengking Province, Manchuria, east of Mukden, latitude 41° 37′ north and longitude 128° 7′ east." (*Ts'ao Julin.*)

37871. "Seeds of the wild ginseng from Fusung." (*Ts'ao Julin.*)

37872 to 37936.

From Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received April 13, 1914. Quoted notes (except as otherwise indicated) by Messrs. Dorsett and Popenoe.

37872. ROLLINIA sp. Annonaceæ. **Rollinia.**

"(No. 76a. Larvas, Minas Geraes, Brazil. January 24, 1914.) Seeds of a wild *araticum* collected near Lavras."

37873 to 37877.

From Sao Joao del Rey, Minas Geraes, Brazil.

37873. HIERACIUM sp. Cichoriaceæ.

"(No. 77a. January 25, 1914.) Seeds of a small plant, apparently an annual, occasionally seen along the watercourses and around the edge of town. It grows to a height of 1½ to 2 feet and produces bright scarlet flowers about half an inch in diameter."

37874. CAESALPINIA sp. Cæsalpiniaceæ.

"(No. 88a. January 26, 1914.) Shrub 15 to 18 feet high, used as a hedge plant; stems very thorny. Seeds said to be poisonous. Collected near the edge of town."

37875. JATROPHA CURCAS L. Euphorbiaceæ. **Mamona.**

"(No. 89a. January 26, 1914.) A low, spreading tree; sometimes used as a hedge plant. Fruit a 3-celled capsule, containing three seeds. We were told that the common name is *mamona*, but this belongs to the castor bean."

37876. ORMOSIA MONOSPERMA (Swartz) Urban. Fabaceæ.

"(No. 90a. January 26, 1914.) A bean used by the negroes to keep off fever. A necklace of them is placed around the children's necks. We have not seen the tree which produces them. These were purchased from a negro woman."

37877. CIPURA PALUDOSA Aublet.

"(No. 91a, January 26, 1914.) A beautiful dwarf irislike plant, growing along the river bank. Its grasslike leaves grow to a height of 12 or 15 inches under favorable conditions; the flowers are not over 1 inch in diameter, but of a most delicate light-blue color, similar to that of the *Iris pallida dalmatica*. Well worthy of a trial as a border plant in warm climates and for forcing."

"Root a round tunicated bulb, covered with membranous integuments. Leaves radical, about a foot high, narrow lanceolate, laxly plicate, 3-nerved or thereabouts, with longitudinal parallel lamellose ribs, thin, grass green, quite smooth, far acuminate, upright, springing from even petiolelike convolute submembranous bases, equitant near the bulb. Stem round, short, strict, terminated by the flower fascicle, which rises from the bosom of a 2-valved involucre, the outer valve of which is similar to the leaves and though smaller yet far longer than the fascicle and even with the summits of the other leaves, inner valve several times less [than the outer], convolute. Pedicels of the fascicle equal to their valves, 1-flowered; flowers several, expanding in succession, and of very short duration. A native of Guiana, where it was found by Aublet in moist meadows (savannahs) at the foot of Mount Coutou, flowering in August; he says it varies with blue flowers." *(Curtis's Botanical Magazine. pl. 1803.)*

37872 to 37936—Contd. (Quoted notes by Dorsett and Popenoe.)

37878. CROTALARIA sp. Fabaceæ.

"(No. 93a. Sitio, Minas Geraes, Brazil. January 28, 1914.) Seeds of a leguminous shrub growing on the edge of a small stream below town. Height about 6 feet. Flowers pealike, bright yellow in color. To be tried as a green cover crop."

37879 and 37880. ROLLINIA spp. Annonaceæ. **Araticum.**

37879. ROLLINIA DOLABRIPETALO (Raddi) St. Hilaire.

"(No. 94a. Sitio, Minas Geraes, Brazil. January 28, 1914.) Seed from *araticum* fruit, large variety with prominent protuberances, partly eaten away by birds."

37880. ROLLINIA GLAUCESCENS Sond.

"(No. 95a. Sao Joao del Rey, Minas Geraes, Brazil. January 26, 1914.) Tree about 15 feet high, leaves oblong lanceolate, smooth, the fruits about 1 inch in diameter, more or less heart shaped, bright orange-yellow in color, the surface smooth or nearly so. Flavor only fair, and seeds almost fill the interior of the fruit."

37881. MICHELIA CHAMPACA L. Magnoliaceæ. **Champac.**

"(No. 96a. Sao Joao del Rey, Minas Geraes, Brazil. January 26, 1914.) The Indian *champac*, very popular here in Brazil as a street and ornamental tree. Its growth is symmetrical and compact, usually rather pyramidal in habit. The largest specimen seen was about 40 feet in height. The bright orange-colored, star-shaped flowers 2 inches in diameter have a delightful fruity fragrance."

37882. ROLLINIA LAURIFOLIA Schlecht. Annonaceæ.

"(No. 98a. Sitio, Minas Geraes, Brazil. January 28, 1914.) Seeds from one fruit, shown cut in halves in photograph. This is the species with prominent protuberances on the surface, fruit heart shaped, about 1½ inches in length."

37883. MAURANDIA BARCLAIANA Lindley. Scrophulariaceæ.

"(No. 99a. Barbacena, Minas Geraes, Brazil. January 30, 1914.) A small vine, found in the cemetery of the church of Boa Morte. It grows 5 or 6 feet in height and forms a dense mat of foliage, the individual leaves not more than 1 inch in diameter. The flowers, which are produced in the utmost profusion, are funnel form, about 1 inch in diameter, and of a rich blue-purple color. A handsome ornamental, well worthy of a trial in different parts of the United States."

37884. COSMOS SULPHUREUS Cav. Asteraceæ. **Cosmos.**

"(No. 100a. Bello Horizonte, Brazil. February 2, 1914.) An annual plant, very similar in growth and appearance to our northern cosmos. Found near the railroad track below town, apparently escaped from cultivation. Flowers bright orange, 1½ inches in diameter, identical in form with our cosmos flowers. May already be known in the United States; if not, it is well worthy of cultivation."

37885. RUBUS ROSAEFOLIUS Smith. Rosaceæ. **Raspberry.**

"(No. 101a. Sao Joao del Rey, Minas Geraes, Brazil. January 26, 1914.) Seeds of the *Amora* berry, which appears to us to be *Rubus rosaefolius*. The plant grows in an apparently naturalized state around cultivated areas and in abandoned gardens. The berries are larger than raspberries, bright red in color, and of good flavor, though a trifle lacking in character."

37872 to 37936—Contd. (Quoted notes by Dorsett and Popenoe.)

37886. CESTRUM sp. Solanaceæ.

"(No. 102a. Sitio, Minas Geraes, Brazil. January 28, 1914.) A shrub, 6 to 8 feet high, with lanceolate leaves and corymbs of tubular, orange-yellow flowers, about 1 inch long. Looks very similar to one of the Cestrums grown in California."

37887. RUBUS sp. Rosaceæ.

"(No. 103a. Sitio, Minas Geraes, Brazil. January 28, 1914.) Plant, 5 to 6 feet high, found in the river valley below town. The fruits, which are produced very abundantly, are the size and form of blackberries, but light green in color when ripe and very sweet in flavor. Of possible value for hybridization."

37888. PHASEOLUS VULGARIS L. Fabaceæ. **Bean.**

"(No. 105a. Barbacena, Minas Geraes, Brazil. January 30, 1914.) Sulphur bean. According to Mr. Frank R. Brainard, Chefe das Culturas, this is one of the best dry beans cultivated on the experimental farm. It is used as a dry bean. He does not know whether it can be used as a snap bean. Very attractive in appearance."

37889. PUNICA GRANATUM L. Punicaceæ. **Pomegranate.**

"(No. 104a. Bello Horizonte, Brazil. February 2, 1914.) Seed from a fruit purchased in the market here. One of the largest we have seen in Brazil, about 4 inches in diameter and of fairly good quality."

37890 and 37891. PHASEOLUS VULGARIS L. Fabaceæ. **Bean.**

From Barbacena, Minas Geraes, Brazil.

37890. "(No. 106a. January 30, 1914.) *Amendoim* or 'peanut bean,' from the experimental farm of the Aprendizado Agricola. A dry bean of large size and attractive appearance, considered of excellent quality."

37891. "(No. 107a. January 30, 1914.) Spotted bean, a variety considered by Mr. Frank Brainard, Chefe das Culturas of the Aprendizado Agricola, as a very good quality."

37892. ROLLINIA GLAUCESCENS Sond. Annonaceæ.

"(No. 108a. Sao Joao del Rey, Minas Geraes, Brazil. January 9, 1914.) Seeds of the *araticum* sent in under No. 95a [S. P. I. 37880], which see for description. Collected on our first visit to Sao Joao."

37893. ARISTOLOCHIA GALEATA Mart. and Zucc. Aristolochiaceæ. **Birthwort.**

"(No. 110a. Bello Horizonte, Minas Geraes, Brazil. February 2, 1914.) A vine found on the fence along the railroad track 5 or 6 miles east of town. It covers the fence for a distance of 15 or 18 feet, and produces its peculiar shaped, large, spotted flowers in great profusion. Brown is the predominating color of the flowers, the mottlings being greenish and cream colored."

37894. VIGNA SINENSIS (Torner) Savi. Fabaceæ. **Cowpea.**

"(No. 111a. Vespasiano, Minas Geraes, Brazil. February 5, 1914.) Seed from plants growing in a cornfield a short distance east of town along the railroad track. The plants were climbing up the cornstalks, which were 10 to 15 feet high."

37872 to 37936—Contd. (Quoted notes by Dorsett and Popenoe.)

37895. Bunchosia sp. Malpighiaceæ. **Café do matto.**

"(No. 112a. Lagoa Santa, Minas Geraes, Brazil. February 5, 1914.) *Café do matto.* A tree about 25 feet high, producing clusters of bright-red fruits the size of small cherries. Each fruit contains one large seed surrounded by a viscous, sticky substance, of sweetish flavor but very astringent. The leaves are said to make a tea equal to *maté*, and the fruit to have medicinal value."

37896. Zea mays L. Poaceæ. **Corn.**

"(No. 114a. Vespasiano, Minas Geraes, Brazil. February 5, 1914.) Two ears of corn from a field in the edge of town. Picked at random. The crop in general is not yet ripe."

37897. Psidium sp. Myrtaceæ. **Guava.**

"(No. 127a. Pirapora, Minas Geraes, Brazil. February 10, 1914.) A wild guava, produced by a small tree 15 to 20 feet high, abundant along the banks of the Rio Sao Francisco in this region. The fruits, while rather small in size, are remarkable for the large proportion of pulp to seeds. The seeds are not only small but very few in number. The pulp is yellowish in color and of very agreeable flavor, having very little of the musky flavor so much objected to in most guavas. The size of the fruit is about 1 to 1¼ inches in length by 1 inch in breadth, color light green, light yellow when fully ripe. Should be given a trial in Florida and California."

37898. Bromelia sp. Bromeliaceæ. **Bromelia.**

"(No. 118a. Pirapora, Minas Geraes, Brazil. February 9, 1914.) A plant similar in general appearance to the pineapple, except that the spines on the leaf margins are fewer and larger. Common on the campo here. Fruits individually about 1¼ inches in length, plump, oval, containing several seeds. Very similar to the *gravatá* sent in from Bahia. For breeding experiments."

37899. Attalea sp. Phœnicaceæ. **Palm.**

"(No. 119a. Pirapora, Minas Geraes, Brazil. February 9, 1914.) Seed of a native palm from the region near the Rio Sao Francisco below here. Kernels said to be very good to eat. Presented by Mr. Barker, of this place, who states that there were 82 nuts in the cluster from which this came."

37900. Celtis morifolia Planch. Ulmaceæ. **Jua mirim.**

"(No. 121a. Pirapora, Minas Geraes, Brazil. February 10, 1914.) *Jua mirim* or small *jua*, growing on the river bank right in town. The tree is about 30 feet high, somewhat spreading in habit. Fruits about one-fourth of an inch in diameter, orange colored, much sought after by children."

37901. Baryxylum dubium (Spreng.) Pierre. Cæsalpiniaceæ.
(*Peltophorum vogelianum* Walp.)

"(No. 122a. Pirapora, Minas Geraes, Brazil. February 10, 1914.) Seed of a large tree 50 to 60 feet high, broad and spreading, giving fine shade. A handsome ornamental tree. Flowers bright yellow, with golden-yellow anthers. Called *cana fistula* here, but this name properly belongs to another plant. Seed obtained from trees growing on the bank of the Rio Sao Francisco at the landing across from railroad station."

7872 to 37936—Contd. (Quoted notes by Dorsett and Popenoe.)

37902. ROLLINIOPSIS DISCRETA Safford. Annonaceæ. **Monkey fruit.**

"(No. 125a. Januaria, Minas Geraes, Brazil. February 15, 1914.) Possibly a Guatteria. Small tree 20 to 25 feet high, common between here and Brejo, 4 miles back from the river. Called *fruta de macaco*, not eaten by the people."

37903. MAURITIA VINIFERA Martius. Phœnicaceæ. **Burity palm.**

"(No. 126a. Januaria, Minas Geraes, Brazil. February 15, 1914.) Seeds of the *Burity* palm, which grows in low, moist places along the river. Its fiber is used for making hammocks, cordage, etc. These seeds were purchased from a native, and some of them may be too old to germinate."

37904. CARYOCAR BRASILIENSIS Cambessedes. Caryocaraceæ. **Piqui.**

"(No. 129a. Januaria, Minas Geraes, Brazil. February 15, 1914.) Fruit of the *piqui*, a common wild fruit in Minas Geraes. It grows on the campos from here to Lavras, where we first saw it. The fruit is just commencing to ripen; the layer of yellow pulp surrounding the seed is edible and has a peculiar taste. The tree grows to a height of 30 feet or more and is broad and spreading in habit."

37905. XYLOPIA CARMINATIVA (Arruda) R. E. Fries. Annonaceæ. **Monkey's-pepper.**

"(No. 131a. Januaria, Minas Geraes, Brazil. February 15, 1914.) *Pimenta de macaco*, 'monkey's-pepper.' Sold in the market here for seasoning and also used as a remedy for intestinal troubles. Said to be produced by a small tree native to this region. For trial in California and Florida."

37906. AMBURANA CLAUDII Schwacke and Taub. Fabaceæ. **Fragrant imburana.**

"(No. 134a. Januaria, Minas Geraes, Brazil. February 15. 1914.) *Imburana de cheiro*, fragrant imburana, a seed highly esteemed in this region. It is ground and mixed with tobacco, to be taken in the form of snuff, and a tea prepared from it is valued as a remedy for colds. Produced by a tree native to this region." Large leguminous tree with odd pinnate leaves composed of 11 to 15 alternate leaflets and large clusters of cream-white flowers. The valuable wood, which is used for flooring, window frames, vats, etc., is much sought after. The crushed seeds are used to perfume tobacco. Both the wood and the seeds have a strong odor of coumarin. (Adapted from *Engler and Prantl, Natürlichen Pflanzen-Familien, III,^{3} p. 387.*)

See S. P. I. No. 37019 for previous introduction.

37907. ZIZIPHUS JOAZEIRO Mart. Rhamnaceæ. **Jua.**

"(No. 135a. Januaria, Minas Geraes, Brazil. February 14, 1914.) Seeds of the *jua*, called here *jua de boi*. A tree growing to 40 or 50 feet high, symmetrical and compact in growth, densely foliated and very thorny, the thorns, however, being short and rather small. The fruits are used only as a remedy, a tea made from them being considered an emollient and very good for bronchial affections. Stock eat the fruit. The tree is believed to have considerable value as forage, particularly for dry lands, where it succeeds extremely well."

37908. ANNONA SQUAMOSA L. Annonaceæ. **Anona.**

37872 to 37936—Contd. (Quoted notes by Dorsett and Popenoe.)

"(No. 136a. Januaria, Minas Geraes, Brazil. February 15, 1914.) Here called *pinha*. Just now it seems to be the most important fruit in Januaria; the season is at its height and the fruits are hawked about the streets at 2 vintens (40 reis) each. This tree bears so heavily here and is of such fine quality that these few seeds are sent because of the possibility that they may prove to be a superior strain."

37909. ZEA MAYS L. Poaceæ. **Corn.**

"(No. 137a. Bom Jesus da Lapa, Bahia, Brazil. February 17, 1914.) Two ears of corn purchased in the village. The common type of corn in this region, used for the manufacture of *farinha* (corn meal, for human consumption) and for hog feed."

37910. ATTALEA sp. Phœnicaceæ. **Palm.**

"(No. 130a. Januaria, Minas Geraes, Brazil. February 15, 1914.) Seed of the palm sent in under No. 119a [S. P. I. No. 37899] from Pirapora. A large species, growing along the banks of the Rio Sao Francisco between here and Pirapora. Called *palmeira* by the natives. Each fruit contains several seeds."

37911. ANNONA SPINESCENS Martius. Annonaceæ. **Anona.**

"(No. 140a. Urubu, Bahia, Brazil. February 17, 1914.) Seed of an *araticum* growing on low, marshy land near the river bank. Bushy shrub 10 to 15 feet high, which because of its compact form and stout spines may be of value as a hedge plant. The fruit, about 3 inches in length and orange-red in color, is edible, but of little value. Hogs seem to be very fond of it. We saw this plant first at Morrinhos; there it was scarce, here it is the commonest plant along the riverside."

For illustrations of this shrub in its native habitat and of its fruits, see Plates V and VI.

37912. CAPSICUM sp. Solanaceæ. **Red pepper.**

"(No. 141a. Barra, Bahia, Brazil. February 18, 1914.) Small pepper, collected near a native hut at a landing above Barra where we stopped to take on wood."

37913. SARCOSTEMMA APICULATUM Decne. Asclepiadaceæ.

"(No. 146a. Xiquexique, Bahia, Brazil. February 19, 1914.) Seed of a sand-binding plant collected on the banks of the Rio Sao Francisco. This plant is most vigorous in growth and forms a loose mat close to the ground, as well as growing up to 4 or 5 feet high in a tangled mass under favorable conditions. For trial in Texas and the Southwest."

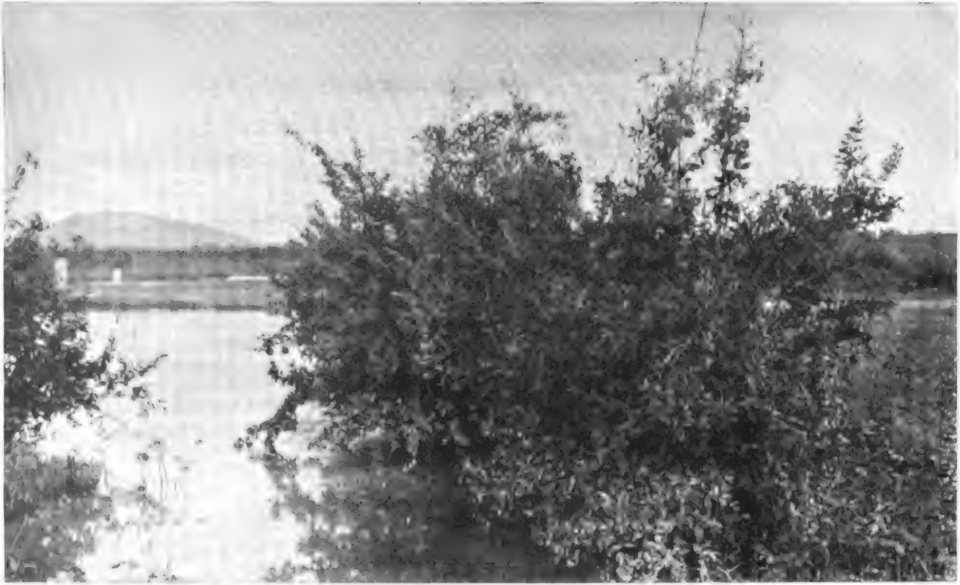
37914. RICINUS COMMUNIS L. Euphorbiaceæ. **Castor bean.**

"(No. 147a. Pilao Arcado, Bahia, Brazil. February 19, 1914.) Seeds collected from plants growing on the bank of the Rio Sao Francisco, in an apparently naturalized state, a few miles above Pilao Arcado."

37915. VIGNA SINENSIS (Torner) Savi. Fabaceæ. **Cowpea.**

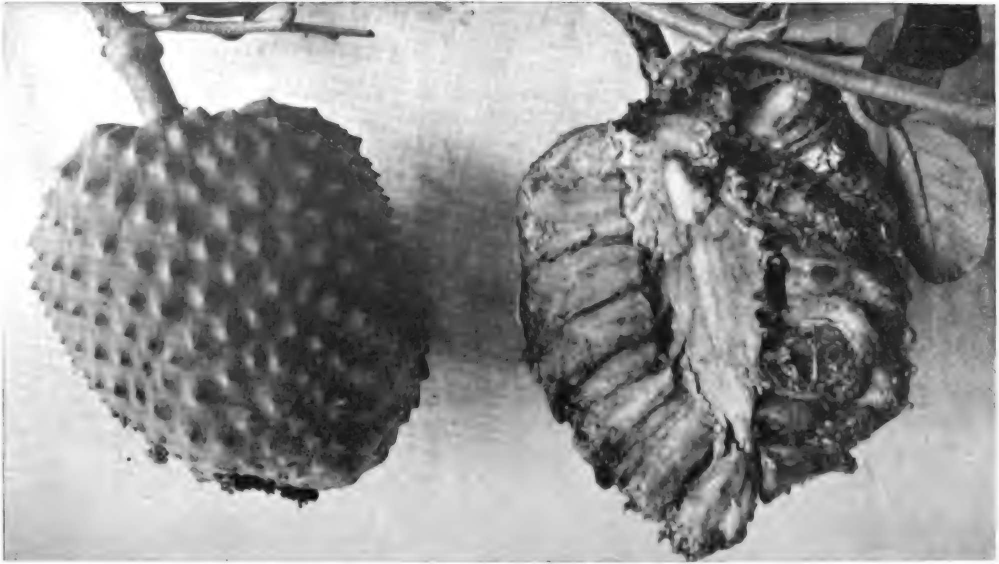
"(No. 148a. Barra, Bahia, Brazil. February 19, 1914.) Known here as *Feijão gurutuba*. In the dry regions of the interior it is said to ripen in 60 days from the sowing of the seed, and to produce most abundantly. Planted in October and November, the beginning of the wet season, in hills 18 to 20 inches apart. Considered specially suited to dry soils. Varieties badly mixed; should be separated into various types if used for planting."

37916. JATROPHA ACANTHOPHYLLA Löfgren. Euphorbiaceæ. **Favelleira.**



AN ORANGE-COLORED SWAMP ANONA (ANNONA SPINESCENS MARTIUS), S. P. I. NO. 37911, ON THE BANKS OF THE RIO SAO FRANCISCO.

This spiny, compact shrub is abundant on the banks of the Rio Sao Francisco near Urubu, Bahia. The plants are low and shrubby, with numerous heavy spines. They grow in low, swampy situations and along the edges of pools, streams, and lakes. The fruit, heretofore unknown to science, is of a brilliant reddish orange color. The flesh, which is practically of the same color, is sweetish, rather insipid, and unattractive. It has been introduced as a possible wet-land stock for the cherimoya and for breeding purposes. (Photographed at Urubu, Bahia, by Messrs. Dorsett and Popenoe, February 17, 1914; P14870FS.)



FRUITS OF THE SWAMP ANONA (ANNONA SPINESCENS MARTIUS), S. P. I. NO. 37911.

When fully ripe these fruits are so soft that even the gentlest handling will break the skin. The flesh, which is of a brilliant reddish orange color, is sweetish, rather insipid, and unattractive, and although known to be edible, it is not esteemed by the natives. Introduced for breeding purposes. (Photographed at Urubu, Bahia, by Messrs. Dorsett and Popenoe, February 17, 1914; natural size; P14875FS.)

37872 to 37936—Contd. (Quoted notes by Dorsett and Popenoe.)

"(No. 150a. Remanso, Bahia, Brazil. February 20, 1914.) Seeds of the *favelleira*, a medium-sized tree with handsome dark-green foliage and spines on the young wood. The seeds are rich in oil and are delicious to the taste, having the flavor of the Brazil nut. Presented by Col. Angelo Camilho, of this place."

37917. IPOMOEA FISTULOSA Martius. Convolvulaceæ.

"(No. 151a. Oliveira, Bahia, Brazil. February 20, 1914.) Seed of a shrub very common along the banks of the Rio Sao Francisco and in low, wet places in this region; height, 10 to 15 feet, tall and slender, branching very little, stems slender and supple, flowers funnelform, 4 inches in diameter, lilac red in color. A very abundant bloomer. Seeds are expelled from the capsules at the slightest disturbance."

37918. SIDA sp. Malvaceæ.

"(No. 152a. Joazeiro, Bahia, Brazil. February 22, 1914.) Small plant 1 to 2 feet high, compact and bushy in form, shrubby at base. The flowers are funnelform, clear light yellow in color, very similar in appearance to *Linum flavum*, but not so deep in color. Might be of value as a greenhouse plant, on account of its dwarf, compact form and profuse blooming."

37919. NEOGLAZIOVIA CONCOLOR C. H. Wright. Bromeliaceæ.

Macambira.

"(No. 153a. Joazeiro, Bahia, Brazil. February 23, 1914.) The *Macambira*, a bromeliaceous plant greatly resembling the pineapple in growth and appearance. It is found growing in great profusion among the rocks on the Ilha do Fogo, in the middle of the Rio Sao Francisco between Joazeiro and Petrolina, whence these seeds were obtained. The flower stalks are 4 to 6 feet high, the flower heads a foot long and 3 inches in diameter, producing seed in the greatest abundance. As far as we can learn, the fiber is not used here, though that of the caroá (*Neoglaziovia variegata*) is employed extensively for the manufacture of cordage."

37920. CUCUMIS MELO L. Cucurbitaceæ. **Muskmelon.**

"(No. 154a. Joazeiro, Bahia, Brazil. February 23, 1914.) Seed of the large yellow *melão* commonly sold here and grown in the vicinity of town. A salmon-fleshed melon with smooth, deeply ribbed skin, light yellow in color. The size is large, up to 15 or 20 pounds. The flavor is that of a small muskmelon; the quality very good. For trial in the Southwest, as it seems to be suited to dry lands."

37921. HYPTIS LONGIPES St. Hil. Menthaceæ.

"(No. 155a. Joazeiro, Bahia, Brazil. February 23, 1914.) A trailing plant, common on the Ilha do Fogo, in the middle of the Rio Sao Francisco, between Joazeiro and Petrolina. It flourishes on pure sand and forms a close mat of stems, which suggests that it might be used in the Southwest as a sand-binding plant. Its flowers, borne in heads 1 inch in diameter and 6 inches above the ground, are bright purple in color, very ornamental in appearance."

37922. PSIDIUM sp. Myrtaceæ. **Guava.**

"(No. 156a. Joazeiro, Bahia, Brazil. February 23, 1914.) The *araça mirim*, or small guava, from the Horto Florestal. Fruit about an inch in diameter, yellow in color, thin skinned, the pulp soft, translucent, the

37872 to 37936—Contd. (Quoted notes by Dorsett and Popenoe.)

seeds abundant. In appearance the plant is similar to *Psidium guajava*. For guava breeding experiments."

37923. Ziziphus joazeiro Mart. Rhamnaceæ. **Jua.**

"(No. 158a. Joazeiro, Bahia, Brazil. February 23, 1914.) Seed of the jua, collected from wild trees on the caatinga near the river 2 miles below town. This interesting and valuable tree is common on the caatingas or dry lands bordering on the Rio Sao Francisco from Joazeiro nearly up to the border of the State of Minas Geraes. Here at Joazeiro it is quite common, but the trees are usually found scattered among the other plants on the caatinga and do not occur in large groves. In places where cattle and horses can get at the trees while young they are kept eaten off almost to the ground, and have a peculiar dwarfed, stunted appearance. When allowed to develop to mature size the tree forms a beautiful, dense green, umbrageous head of foliage 30 feet in diameter. The leaves are somewhat hard and brittle in texture, oval to ovate, about 2 inches in length. The small wood is armed with short, stiff thorns, which are not, however, particularly dangerous. The fruit varies greatly in size, according to the tree by which it is produced. The best fruits are nearly an inch in diameter, creamy yellow in color, spherical or nearly so. Inside the thin skin is a thick layer of mealy flesh, within which lies the seed and the layer of translucent, mucilaginous pulp which surrounds it. The seed is about the size and shape of a small olive stone. The pulp adheres to it very closely and can scarcely be separated even in the mouth. The flavor is peculiar and somewhat insipid. The trees bear prodigiously, the ground under them being covered with fruits at the end of the season. Sheep, cattle, horses, and swine eat the fruit greedily, and it is considered wholesome for them. The principal value of this tree would seem to be as a source of stock feed in dry regions, both the fruits and the foliage being of value for this purpose. In addition, the ornamental value of the tree and its drought-resisting qualities commend it for culture in arid regions. While it is probably not very hardy, it seems likely to be adapted to the Southwest."

37924. Inga affinis DC. Mimosaceæ. **Jatuba.**

"(No. 181a. Joazeiro, Bahia, Brazil. February 24, 1914.) *Jatuba.* A native leguminous tree of slow growth, furnishing lumber extensively used in boat building. The pod in which the seeds are produced contains a soft, sweet pulp which is sometimes eaten."

37925. Phaseolus semierectus angustifolius Martius. Fabaceæ.

"(No. 183a. Joazeiro, Bahia, Brazil. February 24, 1914.) Seed of a brown-flowered leguminous plant 3 to 4 feet high, very slender and with few branches. Common near the river in Horto Florestal. Grows in clay soil near the bank of the Rio Sao Francisco. Flowers deep brown, pealike in form."

37926. Aleurites moluccana (L.) Willd. Euphorbiaceæ. **Lumbang.**

"(No. 190a. Bahia, Brazil. March 9, 1914.) Seeds of the *nogueira*, from the small park in the praça of Piedade. According to Dr. Argollo Ferrão, these seeds are eaten by the natives. A rapid-growing tree, which bears heavily in this climate."

37927. Bactris caryotaefolia Mart. Phœnicaceæ. **Palm.**

"(No. 191a. Bahia, Brazil. March 9, 1914.) Palm seeds sold in the market under the name of *manivelho*. The seed is surrounded by

37872 to 37936—Contd. (Quoted notes by Dorsett and Popenoe.)

a thin layer of subacid pulp of very agreeable flavor. Clusters of fruit are common in the market now."

37928. MIMUSOPS CORIACEA (DC.) Miquel. Sapotaceæ.

"(No. 192a. Bahia, Brazil. March 9, 1914.) A native fruit called *bacopariu* by Dr. Argollo Ferrão, but it certainly is not the true *bacopari* (*Rheedia brasiliensis*). The fruits are round, about 1¼ inches in diameter, yellow in color. The two to five seeds are surrounded by a dry, mealy pulp of sweet, rather mawkish flavor."

37929. POUTERIA CAIMITO (R. and P.) Radlk. Sapotaceæ. **Abiu.**

"(No. 193a. Bahia, Brazil. March 9, 1914.) The *abiu*, a rather rare fruit, but highly esteemed both here and at Rio de Janeiro. In form it is elliptical, 2 to 3 inches long, deep yellow in color. The one to four large, oblong seeds are surrounded by a translucent, whitish pulp very similar in flavor to the *sapote* and fully as agreeable."

37930. ROLLINIA SYLVATICA (St. Hil.) Mart. Annonaceæ. **Araticum.**

"(No. 194a. Bom Fim, Brazil. February 27, 1914.) Seed of an *araticum*. Secured along the railroad right of way about a mile east of town; small shrub or small tree."

37931. SESBAN MACROCARPUM Muhl. Fabaceæ.

"(No. 195a. Bom Fim, Brazil. February 27, 1914.) *Amores casadas.* Ornamental yellow or yellowish brown flowered tree."

37932. SYZYGIUM sp. Myrtaceæ. **Azeitona.**

"(No. 196a. Bom Fim, Brazil. February 27, 1914.) *Azeitona.* Seed from small shrubby tree near town in low, swampy ground."

37933. ANNONA SALZMANNI A. DC. Annonaceæ.

"(No. 202a. Bahia, Brazil. March 11, 1914.) Seed of an *araticum* from Col. Decca's."

37934. COUMA RIGIDA Muell. Arg. **Mucujé.**

"(No. 203a. Bahia, Brazil. March 13, 1914.) *Mucujé.* Seed from fruit purchased in the market. Said to be a large tree."

37935. GENIPA AMERICANA L. Rubiaceæ. **Genipap.**

"(No. 204a. Bahia, Brazil. March 8, 1914.) This fruit is quite common in the market now."

37936. MOQUILEA TOMENTOSA Bentham. Rosaceæ.

"(No. 205a. Rio de Janeiro, Brazil. March 23, 1914.) Seeds of the *oity* tree."

Distribution.—A tree found in the vicinity of Pernambuco in Brazil.

37937 to 37939. TRIFOLIUM PRATENSE L. Fabaceæ. **Red clover.**

From Lausanne, Switzerland. Presented by Prof. G. Martinet, Federal Establishment for Seed Control and Experiments, through Mr. E. Brown, of the Department of Agriculture. Received April 30, 1914. Quoted notes by Prof. Martinet.

37937. "No. 944. *Apitrèfle* (hummelbee clover), a variety which is very productive for three years and can be used two years after being sown. It has the peculiarity of being accessible to honeybees, owing to its short corolla, which is more open at the top. The Director of the Office of Experiment Stations, Dr. A. C. True, last summer in

37937 to 37938—Continued. (Quoted notes by Prof. G. Martinet.)

visiting our establishment saw several bees getting honey from this clover, although he had declared himself to be skeptical before seeing this. As this selection is also one of our best as regards the crop, farmers and beekeepers will find it useful."

37938. "No. 943. This is a perennial clover with numerous fine stocks and many leaves. It develops daughter plants beside the parent stock. This will last for four years and more. The seeds are uniformly yellow, so that it is easy to verify their identity."

37939. "No. 950. Perennial clover higher than the preceding, but not lasting for so long a time. Most of the seeds are dark violet."

37940. Asparagus tenuifolius Lam. Convallariaceæ.

Asparagus.

From Chene, Geneva, Switzerland. Plant presented by Mr. Henri Correvon. Received May 7, 1914.

"This asparagus I found in the Alps of Como, Lombardy." (*Correvon.*)

37941 and 37942. Medicago sativa L. Fabaceæ.

Provence alfalfa.

From Paris, France. Presented by Mr. A. M. Thackara, American consul, who obtained it from Mr. A. Rousset, Paris. Received April 24, 1914. Quoted notes by Mr. Thackara.

37941. "Ordinary Provence alfalfa recleaned against dodder. Mr. Rousset states his belief that this newly harvested seed is desired by the United States Department of Agriculture to distinguish the place of growth in France, but adds that, as he explained to the Chief of the Seed Laboratory, the climate of France is, in his opinion, too even to justify such a theory. He declares that alfalfa seed grown in the Provence district would not, when newly harvested, be any different or contain other varieties of foreign seed than alfalfa grown in other parts of France."

37942. "Extra Provence alfalfa recleaned."

37943. Dioscorea alata L. Dioscoreaceæ. **Yam.**

From Santa Rosa, Fla. Received February 17, 1913, from Mr. William M. Wilson, who obtained them from Dr. E. K. Neal, of the same place. Dr. Neal secured the original material from Mr. J. De Hoff, Arch Creek, Fla. Additional material received from Mr. J. J. Chapman, March 9, 1915.

"The tubers received were rather small and resembled the Jamaica yampee in both form and quality. Judging from these specimens the variety is well worth cultivating in Florida." (*R. A. Young.*)

"I got one seed tuber in 1893, when I first came to Avon Park, De Soto County, Fla., from a neighbor, H. G. Burnett, who had a few in his garden; he got them from his father-in-law, at Fort Myers, where they have been grown, I understand, for 50 years; not in large quantity, however. I have kept seed from year to year since that time, no more, though, than I wanted myself, until year before last, when somehow they made several times more seed tubers than I ever saw before. This last year they again made only a very few seed tubers. I received them under the name of *White Jamaica* yam, but do not know whether

37943—Continued.

this name is correct. Mr. Burnett, who was quite a horticulturist, said their botanical name was *Dioscorea alata*. I grew them for five years near Palatka (at Florahome) and they did well on high hammock land. Down here in Dade County, on very light sandy and rocky land, they produce as much as sweet potatoes, and with me take the place of Irish potatoes; the latter will not succeed in this dry soil at all. The yams keep for months." (*J. De Hoff.*)

37944. PHOEBE NANMU (Oliver) Gamble. Lauraceæ. **Nanmu.**
(*Machilus nanmu* Hemsl.)

From Chungking, China. Presented by the American consul. Received May 1, 1914.

37945 and 37946. COIX spp. Poaceæ. **Job's-tears.**

From the northern Shan States, Burma. Presented by Mr. H. G. Carter, Economic Botanist to the Botanical Survey of India, Indian Museum, Calcutta, India. Received April 20, 1914. Quoted notes by Mr. Carter.

For detailed information relating to these two varieties, see Sir George Watt's account of Coix published in the Agricultural Ledger No. 13, of 1904.

37945. COIX LACRYMA-JOBI MA-YUEN (Rom.) Stapf.

"Forma 4. No. 3b195, edible."

37946. COIX LACRYMA-JOBI STENOCARPA (Oliver) Stapf.

"No. 3b197. Used for bead chains, door screens, and rosaries."

37947. SOLANUM TUBEROSUM L. Solanaceæ. **Potato.**

From Raetihi, New Zealand. Purchased of Mr. J. G. Harris. Received April 22, 1914.

"*New Era* potato. The potatoes are lemon colored in the skin and oval in shape; they are shallow in the eyes and will be economical in use. They grow to a large size, and it is no infrequent thing for a whole root to average a pound per tuber. Indeed, a drawback to the propagation of this potato is the remarkably few small potatoes grown. On my land, which is light and lies in the center of the North Island of New Zealand at an elevation of 2,000 feet, I have grown this variety up to 20 tons to the acre. We have frequent summer frosts here on account of the elevation, but these frosts, though they blacken the ordinary varieties of potatoes, do not affect the *New Era*. Indeed, nothing short of a heavy frost will touch it, but it is the blight-resisting qualities of this potato which are chiefly remarkable. Season after season, growing in a field with other kinds on both sides, it has remained unaffected while the various other kinds have been blackened and ruined. I am confident that unless long cultivation lessens the potato's virility the Irish blight will soon be no longer a terror to potato growers." (*Harris.*)

37948 to 37955.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received May 1, 1914. Cuttings of the following; quoted notes by Mr. Meyer.

37948 to 37952. DIOSPYROS KAKI L. f. Diospyraceæ. **Persimmon.**

From near Tsaochowfu, Shantung, China. Collected March 10, 1914.

37948 to 37955—Continued. (Quoted notes by Mr. F. N. Meyer.)

37948. "(No. 1181. A local variety of persimmon, said to be large, and of elongated, square form, with a constriction running around close to the calyx. Color red; contains few seeds as a rule. Can be dried or kept fresh for a long time, and is considered to be a very good variety. The trees grow to be tall, but have well-formed heads. Chinese name *Ssŭ lêng shih tzŭ*, meaning 'four-squared persimmon.' This and the following varieties are grown on an open plain on sandy loam, and they may possibly be hardier than other varieties. According to Father Petrie, of the Roman Catholic Mission at Tsaochowfu, these persimmons are injured by cold whenever the mercury goes below zero F. The stocks, which are *Diospyros lotus*, never freeze locally, being able to stand severe cold, apparently."

37949. "(No. 1182.) A local variety of persimmon, said to be large, of round form, with rounded-off top. Color yellow, seedless; can be dried or kept fresh for a long time; considered to be a fine variety. The trees are of sturdy growth and are prolific bearers. Chinese name *Pên shih tzŭ*, meaning 'original persimmon.'"

37950. "(No. 1183.) A local variety of persimmon, said to be medium large; of round, pointed form, with a square base. Seedless; can be kept fresh for a long time. Chinese name *Yu lou t'ou shih tzŭ*, meaning 'oil-basket persimmon.'"

37951. "(No. 1184.) A local variety of persimmon, said to be small, of round, flattened shape, with square base. Color yellow; seedless. Is generally eaten pickled in brine. Chinese name *Yen shih tzŭ*, meaning 'salted persimmon.'"

37952. "(No. 1185.) A local variety of persimmon, said to be small, of round, flattened form, with top slightly curved in. Of yellow color; seedless. A very early ripener; good only when fresh. Chinese name *Pa yüeh huang shih tzŭ*, meaning 'eighth moon yellow persimmon.'"

37953. POPULUS TOMENTOSA Carr. Salicaceæ. **Poplar.**

From near Lungkuchi, Shantung, China.

"(No. 1189. March 13, 1914.) The tall-growing North Chinese white poplar, especially recommended as a shade and avenue tree for deep sandy lands in semiarid regions. See former notes [S. P. I. No. 37542.]"

37954. CHAENOMELES LAGENARIA CATHAYENSIS (Hemsl). Schneider. (*Cydonia cathayensis* Hemsl.) Malaceæ. **Quince.**

From Tsaochowfu, Shantung, China.

"(No. 1190. March 11, 1914.) A large-fruited variety of Chinese quince, much grown on the sandy loam around Tsaochowfu."

For previous introductions and descriptions, see S. P. I. Nos. 35458 and 35639.

37955. CRATAEGUS PINNATIFIDA Bunge. Malaceæ. **Hawthorn.**

From Tsaochowfu, Shantung, China.

"(No. 1191. March 11, 1914.) A medium large fruited variety of Chinese haw, of beautiful red color, much used preserved and as a jelly. Chinese name *Hung kuo*, meaning 'red fruit.'"

37956 to 37964.

From Victoria (Pittoa, near Garua), Kamerun, German West Africa. Presented by the Agricultural Experiment Station. Received April 15, 1914.

37956 to 37961. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

37956. No. 1. *Kakassirie.*

37957. No. 5. *Baierie bodérie.*

37958. No. 6. *Danérieballoissolodérie.*

37959. No. 7. *Kilburie.*

37960. No. 8. *Deparie danérie.*

37961. No. 9. *Ssanerari.*

37962. PENNISETUM GLAUCUM (L.) R. Brown. Poaceæ. **Pearl millet.**
(*Pennisetum typhoideum* Rich.)

No. 10. *Jadirie* (*Kolbenhirse*).

37963 and 37964. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

37963. No. 11. *Gaderie.*

37964. No. 12. *Gordori* or *Deparie bodérie.*

37965 to 37972.

From Peru. Presented by Mr. A. Martin Lynch at the request of Dr. Harry V. Harlan, of the Bureau of Plant Industry. Received April 2–3, 1914. Quoted notes by Dr. Harlan.

37965 to 37967. ZEA MAYS L. Poaceæ. **Corn.**

"Purchased in Sicuani (elevation, 11,500 feet), but possibly coming from lower down the valley of the Vilcanote."

37965. "(No. 1. Arequipa, Peru.) Large-grained calico maize."

37966. "(No. 2. Sicuani, Peru.) Large white-grained maize."

37967. "(No. 3. Arequipa, Peru.) Large-grained yellow and mixed maize."

37968. HORDEUM VULGARE L. Poaceæ. **Barley.**

"(No. 5.) Seed purchased in Juliaca (elevation, 12,500 feet); a coarse 6-rowed barley grown for hay as horse feed on the pampas and for grain in some of the protected areas."

37969 and 37970. CHENOPODIUM spp. Chenopodiaceæ.

37969. CHENOPODIUM sp. **Cañagua.**

"(No. 6.) *Cañagua* from Juliaca, Peru. Commonly grown as a cereal crop in elevations as high as 13,500 feet. Is not injured by light freezes at any stage of growth. Not particularly palatable. Might prove useful in high mountain areas, but should be tested under strict control, as it is possible that it might become a weed."

37970. CHENOPODIUM QUINOA Willd. **Quinoa.**

"(No. 7.) *Quinoa* from Juliaca. Only slightly less hardy than *Cañagua*. It is a very palatable cereal and is much less likely to become a weed. Worth testing in areas subject to frosts where wheat and barley are grown with difficulty."

37971. TRITICUM AESTIVUM L. Poaceæ. **Wheat.**
(*Triticum vulgare* Vill.)

"(No. 8.) Wheat purchased in Juliaca but imported probably from the valley of the Vilcanote. Apparently mixed."

37965 to 37972—Continued. (Quoted notes by Dr. H. V. Harlan.)

37972. ZEA MAYS L. Poaceæ. **Corn.**

"(No. 9.) Small-grained yellow maize. Purchased in Juliaca, but imported from Cuzco."

37973 to 37979.

From Chelsea, London, England. Purchased from James Veitch & Sons, Ltd. Plants received April 27, 1914.

37973 and 37974. RHODODENDRON spp. Ericaceæ. **Rhododendron.**

37973. × RHODODENDRON FORSTERIANUM Hort.

"White and fragrant." (*Veitch, Indoor Plants, 1910.*)

Listed by William Watson, Rhododendrons and Azaleas, p. 43, as a hybrid between *R. edgeworthii* and *R. veitchianum*.

37974. × RHODODENDRON FRAGRANTISSIMUM Burb.

"Pure white and very fragrant." (*Veitch, Indoor Plants, 1911.*)

Supposed to be a hybrid between *R. ciliatum* and *R. edgeworthii*.

37975 and 37976. BERBERIS spp. Berberidaceæ. **Barberry.**

37975. BERBERIS STAPFIANA Schneider.

"This species of *Berberis* is very similar to *B. thunbergii*, but the growths are more erect and the leaves are not red tinted. It is a dense, spiny bush with deciduous oblanceolate entire leaves, racemose fascicles of yellow globose flowers, and coral or currant-red berries borne in clusters. It is a native of China." (*Kew Bulletin of Miscellaneous Information, 1913, Appendix III.*)

37976. BERBERIS CORYI Hort.

"This species of *Berberis* is apparently an evergreen, and as an ornamental plant is far superior to either *B. veitchii* or *B. giraldii*. The leaves are in clusters, spatulate and glaucous beneath. The berries, which are also glaucous, are round in shape and currant red in color. It is a native of China." (*Gardeners' Chronicle, 3d ser., vol. 52, p. 321, 1912.*)

37977 to 37979. ROSA spp. Rosaceæ. **Rose.**

37977. ROSA ALBERTI Regel.

"A species with long, graceful shoots clothed with glaucous foliage and bearing ornamental club-shaped coral-red fruits about 1 inch long, which last in good condition for a long time. It is a native of Turkestan." (*Kew Bulletin of Miscellaneous Information, 1912, Appendix III.*)

Distribution.—A white-flowered rose found in the Sungari region of southern Siberia.

37978. ROSA SETIPODA Hemsl. and Wilson.

"A remarkable rose, allied to *R. macrophylla*, with large corymbs of handsome rose-pink flowers. Its long pedicels clothed with spreading, gland-tipped bristles and numerous foliaceous bracts give it a singular appearance. The species is not uncommon in shrubberies in the mountains of the northwestern part of the Province of Hupeh, China." (*E. H. Wilson, in Kew Bulletin, 1916, p. 158.*)

37979. ROSA MOYESII Hemsley and Wilson.

Received as *R. fargesii*.

37980. Aleurites sp. Euphorbiaceæ. Tung tree.

From Chaoyanghsien, Kwangtung, China. Presented by Dr. C. B. Lesher, American Baptist Mission, who secured them through Rev. C. E. Bousfield. Received April 23, 1914.

"Aleurites seeds from about 200 miles in the interior."

37981. Pyrus communis L. Malaceæ. Pear.

From Newark Valley, New York. Presented by Mr. A. F. Barrott. Received April 28, 1914.

"Scions from a pear tree bearing seedless and coreless fruits. Several years ago I purchased from Green's Nursery Co., Rochester, N. Y., a Bartlett pear tree. The second year after this tree was put out it was broken off level with or just a little below the ground. It sprouted again and grew rapidly. I had been away from my farm about five years; when I returned last year I found a fine pear tree which had over half a bushel of *Seckel* pears on it. We ate and used them all, and did not find a seed or a core in any of them. I have not been able to find out from my former tenants whether or not this seedless and coreless condition has heretofore existed. It seems to me that if this pear will stand propagation without changing its character it would be quite a find." (*Barrott.*)

37982. Pyrus sp. Malaceæ. Pear.

From China. Presented by Rev. Hugh W. White, American Presbyterian Mission, Yencheng, Kiangsu, China. Received April 28, 1914.

"*Tangshan.* Unquestionably the finest pear of China. But it is not widely known, because the region of production has heretofore been very secluded, and the fruit does not keep more than one or two months. It is the only Chinese pear that does not have the woody taste and feel, and it has a sweet, juicy flavor. It also grows large, much larger than the ordinary American pear. It grows about 40 miles west of a city called Hsuchowfu, Kiangsu Province. I suppose I am one of the three or four white men that have been in the immediate section where this pear grows. This pear is called the *Tangshan* pear, from Tangshanku, the name of the place that produces it." (*White,* extract from *letter dated March 26, 1912.*)

Cuttings.

37983 to 38041. Grasses.

From Brazil. Collected by Messrs. P. H. Dorsett and Wilson Popenoe, of the Bureau of Plant Industry. Received April 13, 1914. Quoted notes by Messrs. Dorsett and Popenoe.

37983 to 37993.

From Sao Joao del Rey, Minas Geraes, Brazil. Collected January 26, 1914.

37983. Melinis minutiflora Beauv. Poaceæ. Capim gordura.

"(No. 78a.) Seeds of *capim gordura* from plants in an old abandoned garden which had been completely overrun with this grass."

37984. Panicum maximum Jacq. Poaceæ. Guinea grass.

"(No. 79a.) Seed of a grass growing on top of an old adobe wall at the church Senhor do Bom Fim. Seed heads viscous; in stripping off seed they stick together. In an extremely dry situation."

37983 to 38041—Contd. (Quoted notes by Dorsett and Popenoe.)

37985. Eragrostis bahiensis Schrad. Poaceæ.

"(No. 80a.) Seed of a bunch grass from the top of a hill at the church Senhor do Bom Fim. An open-bunch grass, rather spreading, about 4 to 6 inches high, seed stalks 12 to 18 inches high. Growing on top of a high hill, in very exposed and dry situation; soil almost pure sand. Seeds dull greenish purple in color."

37986. Aristida sanctae luciae Trin. Poaceæ.

"(No. 81a.) Seed of a bunch grass from the top of a hill at the church Senhor do Bom Fim. Close bunch grass, bunches about 4 inches in diameter; height of seed stalks about 18 inches; dry soil, almost pure gravel. Open pasture land."

37987. Axonopus chrysoblepharis (Lag.) A. Chase. Poaceæ.

"(No. 82a.) Seed of a bunch grass, growing on a hill at the church Senhor do Bom Fim. Growing in very small bunches, height 3 or 4 inches, flower stalks 18 to 20 inches; exposed and very dry location; soil dry and almost pure gravel. Flower heads usually 2 partite, rarely 3 or 4 partite."

37988. Eragrostis articulata (Schrank) Ness. Poaceæ.

"(No. 83a.) Seed of a grass growing on a hill at the church Senhor do Bom Fim. A low grass, 3 to 4 inches high, flower stalks about 6 inches high, on very dry and exposed situation, soil almost pure gravel."

37989. Sporobolus indicus (L.) R. Br. Poaceæ.

"(No. 84a.) Seeds of a grass growing on a hill at the church Senhor do Bom Fim. Bunch grass in clumps 2 to 8 inches or more in diameter; height 6 to 8 inches; flower stalks 18 to 24 inches; on exposed and very dry location, very gravelly soil."

37990. Eragrostis expansa Link. Poaceæ.

"(No. 85a.) Seed of a grass growing on a hill at the church Senhor do Bom Fim. Bunch grass in small clumps, exposed and dry location, soil almost pure gravel."

37991. Panicum campestre Nees. Poaceæ.

"(No. 86a.) Seed of grass growing on a stock range back of the church Senhor do Bom Fim. Bunch grass closely eaten off by cattle in pasture where collected. Height, where not browsed, 8 to 10 inches. Dry pasture land, heavy red clay soil, altitude 1,000 meters."

37992. Chaetochloa imberbis (Poir.) Scribner. Poaceæ.
(*Setaria imberbis* R. and S.)

"(No. 87a.) Seed of a grass from a stock range back of the church Senhor do Bom Fim. Foxtail grass, fairly common on stock ranges, one that the cattle eat. Dry, reddish clay soil."

37993. Andropogon leucostachyus H. B. K. Poaceæ.

"(No. 109a.) Grass seed from a hill near the church Senhor do Bom Fim. Bunch grass, in small clumps, height about 8 to 12 inches, flower stalks 18 to 20 inches, growing in an exposed and dry situation, soil almost pure gravel."

37994 to 37996.

From Pirapora, Minas Geraes, Brazil.

37983 to 38041—Contd. (Quoted notes by Dorsett and Popenoe.)

37994. CHLORIS POLYDACTYLA (L.) Swartz. Poaceæ.

"(No. 113a. February 8, 1914.) A grass found in the village across the river from here. It grows to a height of about 1½ feet, with seed stalks running up to 3 feet. It seeds profusely, is said to be good, when young, as a pasture grass, and appears to be suitable for hay."

37995. AXONOPUS sp. Poaceæ.

Axonopus sp. prox. *Paspalum marginatus* Trin.

"(No. 116a. February 9, 1914.) Seed of grass growing on campo here. One of the common grasses on the campo. Flower stalks up to 2 to 2½ feet in height. Appears to have been closely grazed by stock."

37996. PASPALUM NOTATUM Fluegge. Poaceæ.

"(No. 120a. February 10, 1914.) Seed of grass collected on the campo about 100 yards from the west bank of the Rio Sao Francisco, where it covers the ground in a solid mat, and makes a good pasture."

37997 to 37999.

From Januaria, Minas Geraes, Brazil.

37997 and 37998. PANICUM spp. Poaceæ.

37997. PANICUM MAXIMUM Jacq. **Guinea grass.**

"(No. 123a. February 14, 1914.) *Capim colonia*, one of the principal forage grasses here, second in importance to *capim bengu*. Seed collected in a field recently planted to this grass. Does not appear to be as widely known as *capim bengu*, but is said to be of very good quality."

37998. PANICUM BARBINODE Trin. **Para grass.**

"(No. 124a. February 14, 1914.) *Capim bengu*, very similar in appearance to *capim de Angola* of Bahia. The most important forage grass here, and preferred above all others. Grows to a height of 7 or 8 feet under favorable conditions and is considered one of the best forages for cattle and horses. Does not seem to be cut very much, the stock being turned in on it to pasture."

37999. DACTYLOCTENIUM AEGYPTIUM (L.) Willd. Poaceæ.
(*Eleusine aegyptiaca* Desf.) **Crowfoot grass.**

"(No. 132a. February 15, 1914.) A low grass growing in a pasture back of town. Makes a close sod and propagates by runners."

38000 to 38003.

From Xiquexique, Bahia, Brazil. Collected February 19, 1914.

38000. DACTYLOCTENIUM AEGYPTIUM (L.) Willd. Poaceæ.
(*Eleusine aegyptiaca* Desf.) **Crowfoot grass.**

"(No. 142a. Seed of a grass collected on the bank of the Rio Sao Francisco, previously collected at Januaria. It grows very tall on soil that is pure sand."

38001. SYNTHERISMA DIGITATA (Sw.) Hitchc. Poaceæ.

"(No. 143a.) Seed of a grass collected on the bank of the Rio Sao Francisco. Appears to be a large Bermuda grass. Grown on soil which is pure sand."

37983 to 38041—Contd. (Quoted notes by Dorsett and Popenoe.)

38002. Eragrostis acuminata Doell. Poaceæ.

"No. 144a.) Seed of a grass collected on the bank of the Rio Sao Francisco from soil that is a pure sand. Looks like a grass collected previously at Sao Joao del Rey."

38003. Anthephora hermaphrodita (L.) Kuntze. Poaceæ. (*Anthephora elegans* Schreb.)

"(No. 145a.) Seed of a grass with which we are unfamiliar, brought on board by one of the passengers, who had collected it on the sandy bank of the Rio Sao Francisco. The only specimen we had became misplaced."

38004 to 38023.

From Joazeiro, Bahia, Brazil. Collected February 24, 1914.

38004. Chaetochloa setosa (Sw.) Scribner. Poaceæ. (*Setaria setosa* Beauv.) **Bitter grass.**

"(No. 160a.) Seed of *capim amargo* (bitter grass) from Horto Florestal. Grows on very poor soil, but is not considered very good for stock."

38005. Holcus sorghum effusus (Hack.) Hitchc.

"(No. 161a.) Seed of *capim de boi* from Horto Florestal. When young it is much liked by cattle; when old the stems are rather tough. Not good for hay; height 5 feet; on clay silt soil."

38006. Paspalum scutatum Nees. Poaceæ.

"(No. 162a.) Grass from Horto Florestal. On clay silt soil."

38007. Leptochloa filiformis (Pers.) Beauv. Poaceæ.

"(No. 163a.) Grass from Horto Florestal. Grown on clay silt soil. Probably good."

38008. Anthephora hermaphrodita (L.) Kuntze. Poaceæ. (*Anthephora elegans* Schreb.)

"(No. 164a.) *Capim espelta* from Horto Florestal. Called by Dr. Zehntner *capim espelta*, and considered by him very good. Grown on clay silt soil."

38009. Nazia aliena (Spreng.) Scribner. Poaceæ.

"(No. 165a. *Capim carapicho de ovelho* from Horto Florestal. Grown on clay silt soil, considered not very good, but grows on poorest soil."

38010. Eragrostis ciliaris (L.) Link. Poaceæ.

"*Capim barba de bode*, on clay silt soil in Horto Florestal. Not considered of great value."

38011. Sporobolus argutus (Nees) Kunth. Poaceæ.

"(No. 167a.) Grass grown on clay silt soil in Horto Florestal. Small, not of much value."

38012. Eragrostis articulata (Schrank) Nees. Poaceæ.

"(No. 168a.) *Capim fino*, on clay silt soil in Horto Florestal. Not considered very good; not sufficient leaf growth."

38013. Chloris leptantha Hitchcock. Poaceæ.

"(No. 169a.) Grown on clay silt soil in Horto Florestal. Name not known. Looks like a very good grass; 3 feet high."

37983 to 38041—Contd. (Quoted notes by Dorsett and Popenoe.)

38014. PANICUM HIRTICAULE Presl. Poaceæ.

"(No. 170a. From Horto Florestal. Probably a *capim de passarinho*, grown on clay silt soil."

38015. SYNTHERISMA DIGITATA (Sw.) Hitchcock. Poaceæ.

"(No. 171a.) From Horto Florestal, on dry silt soil."

38016. PASPALUM DENTICULATUM Trinius. Poaceæ.

"(No. 172a.) Grass from Horto Florestal, on clay silt soil; not abundant here."

38017. DACTYLOCTENIUM AEGYPTIUM (L.) Willd. Poaceæ.
(*Eleusine aegyptiaca* Desf.) **Crowfoot grass.**

"(No. 173a.) *Capim pe de gallinha* or *pe de periquito*, on clay silt soil in Horto Florestal. Not considered to have much value. Resists drought well; not abundant here."

38018. PANICUM HIRTICAULE Presl. Poaceæ.

"(No. 174a.) *Capim de passarinho*, a very good grass, on clay silt soil, in Horto Florestal."

38019 and 38020. ERIOCHLOA POLYSTACHYA H. B. K. Poaceæ.

38019. "(No. 175a.) On clay silt soil in Horto Florestal. Not abundant here."

38020. "(No. 176a.) On clay silt soil in Horto Florestal. Of very good quality; better for hay than pasture. Seems to prefer clay soil."

38021. TRICHOLAENA ROSEA Nees. Poaceæ. **Favorita grass.**
(*Panicum teneriffae* R. Br.)

"(No. 177a.) *Capim favorita*, believed to be native, but now planted in Minas Geraes, Sao Paulo, and elsewhere. Considered a very good grass; used for hay in Sao Paulo.

For an illustration of favorita grass as grown in Brazil, see Plate VII.

38022. ERIOCHLOA PUNCTATA (L.) Hamilton. Poaceæ.

"(No. 179a.) Height about 4 feet, on clay silt soil near river bank in Horto Florestal. Good forage for stock."

38023. CHLORIS ELEGANS H. B. K. Poaceæ. **Caatingueiro grass.**

"(No. 180a.) *Capim caatingueiro*, believed by Dr. Leo Zehntner to be one of the best grasses here. Has come into flower three weeks after cutting. On clay silt soil in Horto Florestal."

For an illustration of caatingueiro grass as grown in Brazil, see Plate VIII.

38024 to 38027.

From Bom Fim, Bahia, Brazil. Collected February 26, 1914.

38024. PANICUM MAXIMUM Jacq. Poaceæ. **Guinea grass.**

"(No. 184a.) *Capim guiné* (guinea grass), or, as it is sometimes called, *capim assú* (big grass). Commonly cultivated here, there being a number of small plantations 1 to 3 acres in extent. Planted about 4 by 4 feet, grows 6 to 10 feet high. Said to be fine for cattle but rather too fattening for horses."

37983 to 38041—Contd. (Quoted notes by Dorsett and Popenoe.)

38025. VALOTA INSULARIS (Elmg.) Chase. Poaceæ. **Sour-grass.**

"(No. 186a.) A grass collected on a hillside in the outer edge of town. It is rather abundant in this region and may have value as a hay grass. It grows rather luxuriantly, reaching a height of 5 feet or even 6."

38026 and 38027. CHAETOCHLOA spp. Poaceæ.

38026. CHAETOCHLOA LACHNEA (Nees) Hitchcock. **Foxtail grass.**

"(No. 187a.) A foxtail grass, growing on the hillside at the edge of town. Does not seem to be of any particular value. Grows 2 to 2½ feet high.

38027. CHAETOCHLOA CAUDATA (Lam.) Scribner.

"(No. 188a.) A grass about 3 feet high, growing abundantly on the hillsides around town. The soil is stiff clay, and the climate here is very dry for a large part of the year."

38028. PASPALUM ATTENUATUM Presl. Poaceæ.

En route from Bom Fim to Bahia, Brazil. Collected February 28, 1914.

"(No. 198a.) Collected between Agua Fria and Entroncamento, 45 kilometers above Alagoinhas. Very common on rolling dry uplands."

38029. CHLORIS VIRGATA Swartz. Poaceæ.

From Serrinha, Brazil. Collected February 28, 1914.

"(No. 199a.) Secured at Serrinha."

38030. PANICUM MAXIMUM Jacq. Poaceæ. **Guinea grass.**

From Bom Fim, Bahia, Brazil. Collected February 26, 1914.

"(No. 200a.) *Capim guiné* (guinea grass), or, as it is sometimes called, *capim assú* (big grass). Commonly cultivated here, there being a number of small plantations 1 to 3 acres in extent. Planted about 4 by 4 feet, grows 6 to 10 feet high. Said to be fine for cattle but rather too fattening for horses."

38031. PASPALUM CONJUGATUM Berg. Poaceæ.

From Ramona, Bahia, Brazil. Collected March 11, 1914.

"(No. 201a.) Seed of what appears to be and is reported to be a very good pasture grass. When pastured close it makes a good sod; likes low situations."

38032 to 38039.

From Rio de Janeiro, Brazil. Purchased from Eickhoff, Carneiro Leão & Co.

38032 to 38034. HOLCUS spp. Poaceæ.

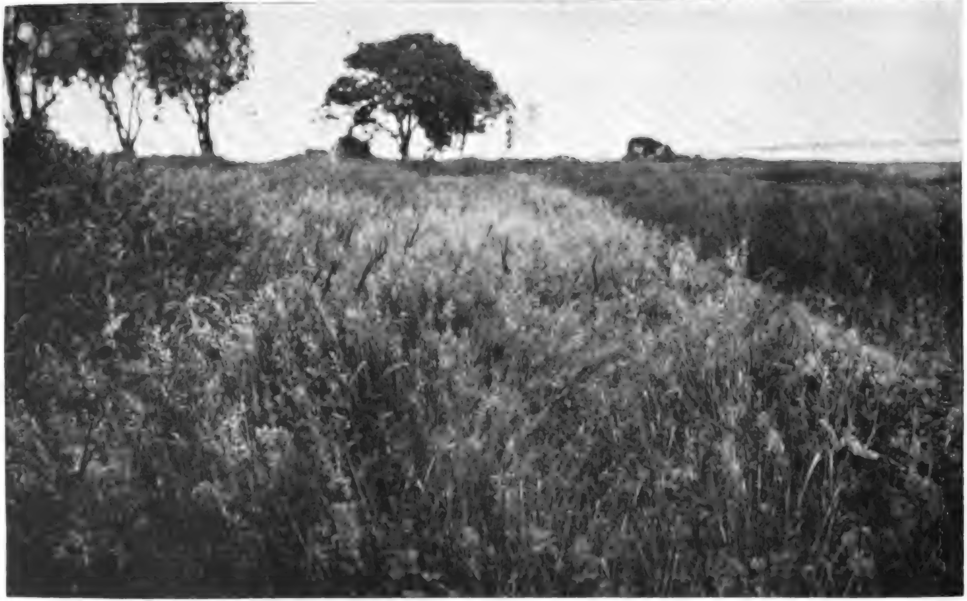
38032. HOLCUS HALEPENSIS L. **Sudan grass.**
(*Sorghum halepense* Pers.)

"(No. 207a. March 23, 1914.)"

38033 and 38034. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

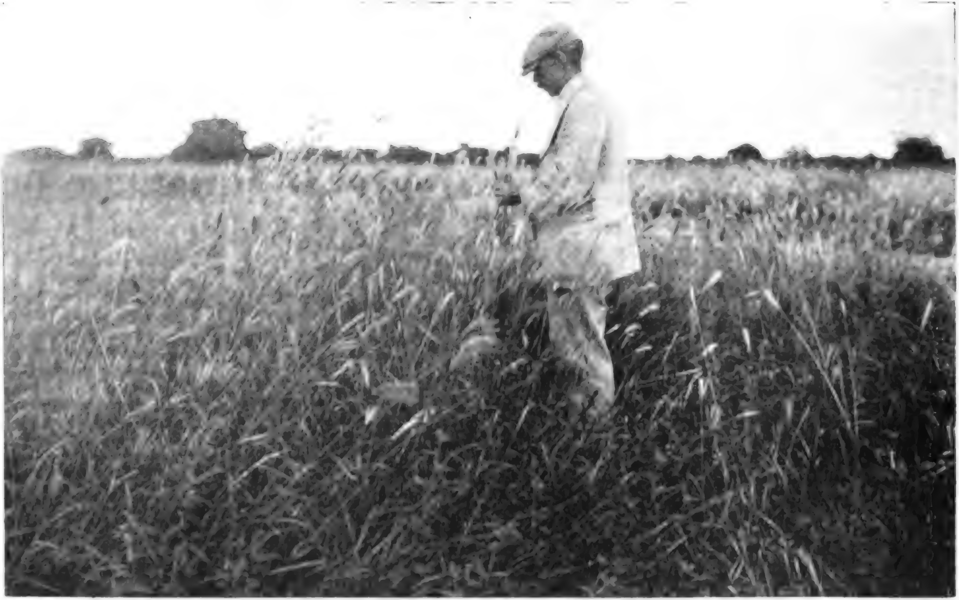
38033. "(No. 210a.)"

38034. "(No. 211a. March 23, 1914.)"



TRIAL PLAT OF FAVORITA GRASS (TRICHOLAENA ROSEA NEES), S. P. I. NO. 38021, AT THE HORTO FLORESTAL, AN EXPERIMENT STATION AT JOAZEIRO, BAHIA, ON THE BANKS OF THE RIO SAO FRANCISCO.

This handsome grass with rose-colored flower heads, as indicated by the name, under favorable conditions grows to a height of 2 or more feet. It is planted to a limited extent in some parts of the State of Bahia, and also, it is said, in parts of the State of Sao Paulo. Its principal use is as green forage. (Photographed by Messrs. Dorsett and Popenoe, February 24, 1914; P14946FS.)



A FIELD OF CAATINGUEIRO GRASS (CHLORIS ELEGANS H. B. K.), S. P. I. NO. 38023.

This dry-land grass has been planted experimentally in the Horto Florestal at Joazeiro, State of Bahia, Brazil. It resists the severe climate of this region and produces a fairly good yield. Live stock are said to prefer it to many other grasses grown in Brazil. Mr. Dorsett is shown collecting seeds of this number. (Photographed by Wilson Popenoe, February 24, 1914; P14944FS.)

37983 to 38041—Contd. (Quoted notes by Dorsett and Popenoe.)

38035. CAPRIOLA DACTYLON (L.) Kuntze. Poaceæ.
(*Cynodon dactylon* Pers.) **Bermuda grass.**

"(No. 212a. March 23, 1914.)"

38036. ARRHENATHERUM ELATIUS (L.) Beauv. Poaceæ. **Oat-grass.**

"(No. 213a. March 24, 1914.)"

38037. CYMBOPOGON RUFUS (Nees) Rendle. Poaceæ.
(*Andropogon rufus* Kunth.)

"(No. 214a. March 24, 1914.) *Capim jaragua*."

38038. MELINIS MINUTIFLORA Beauv. Poaceæ. **Molasses grass.**

"(No. 215a. March 23, 1914.) *Capim gordura roxo*."

38039. PANICUM BULBOSUM H. B. K. Poaceæ. **Guinea grass.**

"(No. 216a.) *Capim guiné*, or guinea grass."

38040 and 38041.

From Bahia, Brazil. Collected March 19, 1914.

38040. HOMOLEPIS ISOCALYCINA (Meyer) Chase. Poaceæ.
(*Panicum isocalycinum* Meyer.)

"(No. 221a.) Seed from grass growing in clay on a hillside in a small pasture near the 'Centro Agricola' Experiment Station near Bahia. Grass roots at joints."

38041. PANICUM LAXUM Swartz. Poaceæ.

"(No. 222a.) Seed from grass growing in clay soil on a hillside in a small pasture near the 'Centro Agricola' Experiment Station near Bahia. This appears to be a bunch grass; soil dry; exposed situation."

38042 and 38043. CINCHONA spp. Rubiaceæ.

From Kalimpong, Bengal, India. Presented by Mr. Henry F. Green, manager, Government Cinchona Plantations, at the request of the superintendent of cinchona cultivation in Bengal. Received May 2, 1914.

38042. CINCHONA OFFICINALIS L. **Cinchona.**

"The loxa or crown bark, the pale bark of commerce. This is a native of Ecuador and Peru and with *C. succirubra* was the species assigned by Markham to his colleague, Spruce, to discover. It is grown at high elevations (above 7,000 feet) in the Nilgiris, Ceylon, and Sikkim, but not extensively. It is a weak, straggling tree, attaining at most only 20 feet in height. Its cultivation in Sikkim has, however, been almost abandoned, owing to the climate being too moist, but it is perhaps the most important of the species grown in the Nilgiri Hills." (*Watt, Commercial Products of India.*)

38043. CINCHONA SUCCIRUBRA Pavon. **Cinchona.**

"The red bark is largely cultivated on the hills of South India at altitudes of 4,500 to 6,000 feet; at higher altitudes the growth is too small to make its cultivation profitable. On the hills east of Toungoo in Burma and in some parts of the Satpura Range of Central India it is grown, and also met with in the Government plantations of Sikkim, but it is not popular, and is rapidly being replaced by *C. calisaya* var. *ledgeriana*.

38042 and 38043—Continued.

It is a hardy plant with a bold, sturdy stem. In rich and sheltered situations it grows to a height of 50 feet or more. The leaves are bright apple green in color, the plantation in consequence looking light and bright, while one of *C. officinalis* looks dark and gloomy." (*Watt, Commercial Products of India.*)

38044. ORYZA SATIVA L. Poaceæ. **Rice.**

From Lusambo, Belgian Kongo, Africa. Presented by Mr. J. A. Stockwell, through Mr. W. R. Lamberth, Oakdale, Cal. Received May 6, 1914.

"Seed of the African hill rice. This rice is raised here on the hillsides, where it can get no water, except that which rains on it.

"I had thought of its being used at home in this way. In Louisiana, where I used to live, we have what are known as the 'pimple prairies,' and where these pimples or mounds occur in the rice fields, it causes not only that much land to be wasted but often weeds grow on them, the seeds of which are very hard to remove from the rice. I thought that perhaps if these mounds were planted with this hill rice that this trouble could be avoided." (*Stockwell.*)

38045. VICIA FABA L. Fabaceæ. **Broad bean.**

From Algiers, Algeria. Presented by the American consul. Received May 1, 1914.

38046. VIGNA NILOTICA (Delile) Hook. f. Fabaceæ.

From Cairo, Egypt. Presented by Mr. Thomas W. Brown, Gizeh Branch, Ministry of Public Works, Department of Agriculture, Horticultural division, through Prof. S. C. Mason, of the Department of Agriculture. Received May 1, 1914.

"In Muschler's Flora it is stated that this grows in the Delta, but I have seen it only in Aswan and Nubia. This seed was grown at Gizeh. It is of much less value than the common variety of *Vigna sinensis*, commonly cultivated throughout the country." (*Brown.*)

38047. CEIBA ACUMINATA (S. Wats.) Rose. Bombacaceæ.
(*Eriodendron acuminatum* S. Wats.) **Mexican cotton tree.**

From Tlatlaya, State of Mexico. Presented by Mr. William Brockway. Received April 25, 1914.

"Mexican cotton tree (*pochota*). Collected near Tlatlaya, April 6, 1914." (*Brockway.*)

38048. SALVIA sp. Menthaceæ. **Chia.**

From Zacuapam, Huatusco, Vera Cruz, Mexico. Presented by Prof. C. A. Purpus. Received May 6, 1914.

"The seeds are put into water, where they swell up and soften and are used as a drink, mixed with sugar and red wine. *Chia* was used by the Aztecs in olden times to make a drink, mixed with corn (maize)." (*Purpus.*)

38049 to 38052.

From Epsom, Auckland, New Zealand. Presented by Mr. D. Petrie. Received April 21, 1914.

38049 to 38052—Continued.

38049. GAYA LYALLII (Hook. f.) Baker. Malvaceæ.
(*Plagianthus lyallii* Hook f.) **Large-flowered ribbonwood.**

"A very fine small tree of the order Malvaceæ, with fine clusters of cherrylike flowers, and it is hardy here." (*Petrie.*)

"A beautiful shrub, found only in the mountainous districts of the South Island. This is one of the very few New Zealand trees which shed their leaves in the winter and show autumnal tints. The leaves are clothed with stellate hairs, and are deeply notched. This plant is one of the many surprises of the New Zealand forest. The traveler, who sees for the first time its cherrylike blossoms amidst the greenery of the bush, usually regards it as an escape from some garden. Its soft, tender, deciduous leaves are in strong contrast to the normal, hard, glossy leaf of the typical trees of the New Zealand forest, whilst its flowers are equally different from the typical, minute, greenish clusters of Nothopanax, etc." (*Laing and Blackwell, Plants of New Zealand.*)

38050. FUCHSIA PROCUMBENS R. Cunningh. Onagraceæ. **Fuchsia.**

"A spreading slender shrub with sweet flowers. Good for rockery if climate is mild." (*Petrie.*)

"A slender, prostrate plant 6 to 18 inches long. Leaves ovate or cordate, one-fourth to one-half an inch long. Flowers one-half to three-fourths inch long, solitary, axillary, erect. Petals none. Berry shining, pale red. In sandy or rocky places. It lacks the graceful, pendulous flower stalks which enhance so much the beauty of the cultivated forms, but it is a very dainty little species. The sharp contrast between the beautiful waxy yellow of the calyx and the intense pure blue of the pollen would make it noticeable anywhere. Any other color but yellow is rare in pollen, and such a bright blue as this has probably some definite though unknown significance. It is of the same color in the two other New Zealand species. It is also extremely viscid. This no doubt enables it to cling readily to any insect which may enter the flower. The viscidity is due to the development by the pollen grains of structureless drops of a glutinous fluid that very readily draws out into long fine threads. In each of the three New Zealand species of Fuchsia there are three forms of flower, and in some cases, also, intermediate forms. In *F. procumbens* there is a long-, short-, and mid-styled form, but the stamens are of the same length in each case." (Adapted from *Laing and Blackwell, Plants of New Zealand.*)

38051. METROSIDEROS DIFFUSA Smith. Myrtaceæ.

"A fine low-branching shrub, crimson flowers. North Island, New Zealand." (*Petrie.*)

38052. PITTOSPORUM EUGENIOIDES Cunningh. Pittosporaceæ. **Tarata.**

"South and North Islands, New Zealand." (*Petrie.*)

"A tree sometimes 40 feet in height, glabrous, with large corymbs of fragrant flowers of a greenish yellow hue. Leaves 2 to 3 inches long, broadly oblong, usually waved at the margins. Bark white. Capsules 2 to 3 valved. A beautiful tree whose pale-green leaves with undulating margins emit, when bruised, a lemonlike odor. The delicate venation and light-colored, almost white, midrib add to the beauty of the leaf. The Maoris mixed the resinous exudation from the bark with the juice of the sow thistle and worked it into a ball, which they chewed. In October the tree produces masses of yellowish green flowers, whose heavy

38049 to 38052—Continued.

honied odor is almost sickening in its intensity. According to Mr. G. M. Thomson, the plant is probably often self-pollinated; but Mr. Kirk points out, in his Forest Flora, that though stamens and pistils are always present, one or the other is often abortive, so that the flowers are often practically unisexual. The wood of this species, like that of the other species of the genus, is almost worthless. The tree is often cultivated for its beauty, and is sometimes—though not so often as *P. tenuifolium*—used to form an ornamental hedge." (*Laing and Blackwell, Plants of New Zealand.*)

38053. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**

(*Sorghum vulgare* Pers.)

From San Giovanni a Teduccio, Italy. Purchased from Dammann & Co. Received January 30, 1914.

"*Durra.*"

38054 and 38055. RUBUS BOGOTENSIS H. B. K. Rosaceæ. **Blackberry.**

From Bogota, Colombia. Procured by Mr. F. L. Rockwood, clerk, American Legation, at the suggestion of Mr. Frank M. Chapman, curator, American Museum of Natural History. Received May 6, 1915.

Rooted plants; quoted notes by Mr. Chapman.

38054. "A remarkable blackberry which we found growing near a roadside posada, called El Pinyon, on the road between Bogota and Fusagasuga. El Pinyon, with an altitude of 9,600 feet, is in the Temperate Zone, with an average annual temperature of probably about 60°. The warm air from the Magdalena Valley at this point draws up through a cut in the mountains and is condensed as it reaches El Pinyon, at which place the descent to Fusagasuga begins; the result is a cold, perpetually moist climate, such as I imagine we should find it very difficult to duplicate in the United States, and for this reason it might be hard to introduce the berry into this country. As for the berry itself, I, unfortunately, can tell you very little about it except in regard to its size and flavor. We did not, I am sorry to say, even make measurements of the berries, and I have therefore found great difficulty in making my friends believe my stories of its size. From memory, however, I should say that its length was between 3½ and 4 inches, its breadth between 2 and 2½ inches, and its height between 2 and 3 inches. The flavor was most delicious, and suggested in part that of the blackberry of the subtropical zone of the Andes, known as *El Moral de Castile*, and to some extent that of the raspberry. The berries grew in small clusters of three or four, and not many appeared to be on one bush. The bushes, as I remember, were rather tall and scraggly, but they were placed with other vegetation, and I gained no clear idea of their form. They were not abundant."

38055. "*El Moral de Castile.* This berry, which appears to grow wild, attains a size and shape comparable to that of our best cultivated varieties, and to my mind has a better flavor than any of them. It may be found in abundance in the subtropical zone at an elevation of 6,000 to 8,000 feet; or, to be more definite, at a posada about one hour below El Pinyon, toward Fusagasuga, known as El Roble. Here, too,

38054 and 38055—Contd. (Quoted notes by Mr. F. M. Chapman.)

the rainfall is high, for the entire Temperate Zone is included in the area of condensation. We worked at these localities during the first part of April, when the blackberry crop had not reached full maturity. I should say that, provided similar conditions prevail in other years, April 15 would be about the proper time to find the plants in fruit."

38056. PELARGONIUM ODORATISSIMUM (L.) Soland. Geraniaceæ. **Rose geranium.**

From Nice, France. Presented by the American consul. Received May 5, 1915.

"From Pegomas, the center of the geranium-plant industry in this district. The vice consul was informed by the principal growers of geranium that only one variety is used in the perfume industry, the botanical name being *Pelargonium odoratissimum*, and that the cuttings are taken at the end of October or at the beginning of November, and must be very carefully handled during the winter months, and especially protected against cold and frost, which necessitates careful attention." (Extract from report by *William Dulany Hunter, American consul, Apr. 23, 1914.*)

38057 to 38062. HORDEUM spp. Poaceæ. **Barley.**

From Zurich, Switzerland. Presented by Prof. Dr. Albert Volkart, Swiss Seed Experiment Station, through Mr. David F. Wilber, American consul. Received March 23, 1914. Quoted notes by Dr. Volkart.

38057. HORDEUM VULGARE COERULESCENS Seringe.

"Four-rowed winter barley (unimproved domestic variety) from Riniken, Canton Aargau."

38058. HORDEUM VULGARE L.

"*Argovia* (4-rowed winter barley, pure bred from domestic barley). From the Agricultural School at Brugg, Canton Aargau."

38059 and 38060. HORDEUM DISTICHON NUTANS Schubl.

38059. "Two-rowed spring barley (unimproved domestic variety) from Adlikon bei Andelfingen, Canton of Zurich."

38060. "Adliker barley (2-rowed, pure bred from a single domestic variety) from Jb. Ohninger, Adlikon."

38061 and 38062. HORDEUM VULGARE L.

38061. "Four-rowed spring barley (unimproved domestic variety) from Vorrenwald Eich, Canton Lucerne."

38062. "Six-rowed spring barley (unimproved domestic variety) from Pfyn, Canton Thurgau."

38063 to 38084. OPUNTIA spp. Cactaceæ. **Prickly-pear.**

From Berlin, Germany. Presented by the Botanic Garden. Cuttings received May 6, 1914.

38063. OPUNTIA ALBICANS Salm-Dyck.

38064. OPUNTIA ANACANTHA Speg.

38065. OPUNTIA CANDELABRIFORMIS Mart.

38066. OPUNTIA CHRYSACANTHA Hort.

38067. OPUNTIA CONSOLEANA Hort.

38063 to 38084—Continued.

38068. Opuntia curassavica Mill.

38069. Opuntia elata delaetiana Weber.

38070. Opuntia sp.

38071. Opuntia elata Salm-Dyck.

38072. Opuntia elongata (Willd.) Haworth.

38073. Opuntia glaucescens Salm-Dyck.

38074. Opuntia glaucophylla Wendl.

38075. Opuntia glomerata Haw.

38076. Opuntia kleiniae P. DC.

38077. Opuntia lanceolata Haw.

38078. Opuntia lemaireana Console.

38079. Opuntia microcarpa Engelm.

38080. Opuntia paraguayensis K. Schumann.

38081. Opuntia spegazzinii Web.

38082. Opuntia sulphurea Gillies.

38083. Opuntia mieckleyi K. Schumann.

38084. Opuntia vulpina Web.

No. 38070 was received as *Opuntia diacantha*, the name of which is not found to have been published.

38085 to 38087. Holcus sorghum L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Sapporo, Japan. Presented by Mr. T. Minami, Professor of Agronomy, College of Agriculture, Tohoku Imperial University, at the request of Dr. R. Shoji. Received May 6, 1914. Quoted notes by Mr. Minami.

38085. "No. 1. Sorghum (so-called sorghum *Janome*) produced in Hokkaido in 1912."

38086. "No. 2. Sorghum (common) produced in Hokkaido in 1912."

38087. "No. 3. Sorghum (common) produced in Honshu (the mainland of Japan) in 1913."

38088 to 38093. Oryza sativa L. Poaceæ. **Rice.**

From Southern Circle, Burma, India. Presented by Mr. A. McKerral, Deputy Director of Agriculture. Received May 4, 1914.

38088. *Ngasein paddy.* No. 1.

38089. *Baw yoot.* No. 2.

38090. *Nga-cheik-gale.* No. 3.

38091. *Bau-gauk.* No. 4.

38092. *Java paddy.* No. 5.

38093. *Saba-net-Taungbya.* No. 6.

38094 and 38095. Amygdalus persica L. Amygdalaceæ. **Peach.**
(*Prunus persica* Stokes.)

From Arequipa, Peru. Presented by Mr. Leon Campbell, Superintendent of the Observatorio. Received May 2, 1914. Quoted notes by Mr. Campbell.

38094. "Peach seeds gathered in Arequipa market February 15 to March 20, 1914."

38095. "A distinct class, known here as *Uvillas*. Collected near the Observatorio, March, 1914."

8096 to 38099.

From Queensland, Australia. Presented by Mr. J. A. Hamilton, Tolga, via Cairns, Queensland, Australia. Received April 29, 1914. Quoted notes by Mr. Hamilton, except as otherwise stated.

38096. Backhousia bancroftii Bailey and Muell. Myrtaceæ.

"Seed of a giant hardwood, one of our best; likes a fairly wet climate; grows 5 to 6 feet in diameter."

"Wood of a light-gray color, hard, close grained, something like teak, useful as a building timber; rather dark toward the center in large trees; splits straight and freely." (*Bailey. In Maiden, Useful Native Plants of Australia.*)

38097. Passiflora edulis Sims. Passifloraceæ. **Passion fruit.**

"A large-fruited passion fruit."

38098. Tristania suaveolens (Soland.) Smith. Myrtaceæ.

"A common tree here; makes a fair shade tree."

"Timber used for buggy and coach frames, tool handles, mallets, cogs of wheels, posts, etc. It is remarkably strong and elastic, tough, close grained, and durable, but it is liable to rend in seasoning. 'It is of a red color, resembling Spanish mahogany. It is extensively used for piles, as it is found to resist the ravages of the teredo longer than any other wood as yet tried in the colony.' (*Catalogue, Queensland Woods, Colonial Exhibition, 1886.*)" (*Maiden, Useful Native Plants of Australia.*)

38099. Maximilianea sp. Cochlospermaceæ.
(*Cochlospermum* sp.)

8100 to 38104.

From Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Division of Horticulture, Lamao Experiment Station. Received April 29–30, 1914.

38100. Abroma augusta L. f. Sterculiaceæ.

"It is found in various parts of India, growing to be a small tree. Flowers most profusely during the rains, and ripens seed during the cold season. The bark abounds with strong white fibers, which make a very good substitute for hemp; and as the plant grows so quickly as to yield two, three, or even four crops of cuttings within the year fit for peeling, etc., it may be advantageously cultivated (in India) for its fibers which, though not so strong as hemp, make a good common cordage. The top leaves of this stately vegetable are oblongly cordate, nearly twice longer than broad, scarcely angular or scalloped, and have short stalks, the lower ones are oblately cordate, nearly round in the circumference, cut into 5 to 7 pointed lobes, and have long stalks. The corolla is nodding, and the petals converge." (*Botanical Register, pl. 518, 1821.*)

38101 and 38102. Citrus spp. Rutaceæ.

38101. Citrus nobilis deliciosa (Tenore) Swingle. **Mandarin.**

"Seeds of a small, oblate, very thin-skinned mandarin of most excellent quality, that is imported from China in considerable quantities. It is to my mind greatly superior to all the mandarins I have eaten here or in Florida, with possibly the exception of the *Oneco*, which it very much resembles in flavor. Considering how well the

38100 to 38104—Continued.

mandarin reproduces itself from seed, at least a few seedlings of excellent quality ought to be obtained from these seeds." (*Wester.*)

38102. Citrus sp. **Lime.**

38103. Talauma sp. Magnoliaceæ.

"A very ornamental tree in the Philippines. This species in all probability is too tender for the mainland of the United States." (*Wester.*)

38104. Mussaenda philippica A. Richard. Rubiaceæ.

"A very ornamental tree in the Philippines. This species in all probability is too tender for the mainland of the United States." (*Wester.*)

"A shrub or small tree 3 to 5 meters high, more or less pubescent or nearly glabrous. Leaves oblong ovate to oblong lanceolate, acuminate, 6 to 14 cm. long, base acute; stipules about 4 mm. long, 2-fid. Cymes terminal, rather open, pubescent, few flowered. Calyx about 7 mm. long, four of the teeth as long as the tube, one very much enlarged as a white, leaf-like, long-petioled, elliptic-ovate appendage, the lamina 4 to 8 cm. long. Corolla yellow, pubescent, about 2 cm. long, enlarged upward. Fruit about 1.5 cm. long. Common and widely distributed in the Philippines, variable. Perhaps only the Philippine representative of the Indo-Malayan *Mussaenda frondosa* L." (*Merrill, Flora of Manila.*)

38105 to 38110.

From Matania el Saff, Egypt. Presented by Mr. Alfred Bircher, Middle Egypt Botanic Station. Received May 4, 1914. Notes by Mr. Bircher.

38105. Citrullus vulgaris Schrad. Cucurbitaceæ. **Watermelon.**

"From Rhodesia. A watermelon with greenish flesh of poor taste, but a good keeper, which can be stored away for six months or more; it may be valuable for hybridization purposes."

38106 and 38107. Hibiscus spp. Malvaceæ.

38106. Hibiscus physaloides Guill. and Perr.

"From the Kongo. The leaves are cooked like spinach; the taste slightly acid."

Distribution.—A tall herb or under shrub with cordate 5-lobed leaves and purple flowers, found in the Senegal region of Upper Guinea, in the Mozambique district, and in the vicinity of Durban, Africa.

38107. Hibiscus sabdariffa L. **Roselle.**

38108. Holcus halepensis L. Poaceæ. **Sudan grass.**
(*Sorghum halepense* Pers.)

"A fodder grass growing spontaneously in Egypt."

38109. Physalis curassavica L. Solanaceæ.

"Berries edible in cooked state."

38110. Vigna sinensis (Torner) Savi. Fabaceæ. **Cowpea.**

"Var. *Mammoth*, of gigantic growth."

38111. Zephyranthes sp. Amaryllidaceæ.

From Bom Fim, Bahia, Brazil. Collected by Messrs. Dorsett, Shamel, and Popenoe, of the Bureau of Plant Industry. Received April 13, 1914.

"(No. 75. February 27, 1914.) A beautiful bright pink amaryllislike flower, found in a field of *Capim favorita.*" (*Dorsett, Shamel, and Popenoe.*)

38112. SEAFORTHIA ELEGANS R. Brown. Phœnicaceæ. **Palm.**

(*Ptychosperma elegans* Blume.)

From Belize Botanical Station, British Honduras. Collected by Mr. O. F. Cook, of the Bureau of Plant Industry. Received May 8, 1914.

"Said to grow wild in the Stann Creek district, south of Belize, but a native of northern Australia. A slender, graceful palm, reaching 30 feet in height, growing in the garden of the British consul at Livingston. Large-fruited form. This appears to be the genuine *Ptychosperma elegans*, originally described as *Seaforthia elegans*. The palm that is commonly planted in California under the name *Seaforthia elegans* does not represent this species, but has been described recently as the type of a new genus, under the name *Loroma amethystina*." (*Cook.*)

38113. CUCUMIS ANGURIA L. Cucurbitaceæ.

From Joazeiro, Brazil. Collected by Messrs. Dorsett, Shamel, and Popenoe, of the Bureau of Plant Industry. Received April 13, 1914.

"(No. 197a. February 23, 1914.) *Maxixe.* Seed of a small, spiny, oval, green fruit used extensively as a vegetable in the interior." (*Dorsett, Shamel, and Popenoe.*)

"An annual plant, native of South America, where the fruit is eaten; much branched, creeping; stems slender, reaching a length of 2 to 3 meters, coarsely hairy and with simple tendrils; leaves divided into 5 to 7 rounded, very slightly dentate leaves; flowers yellow, very small, numerous. Fruit oval, green, striped lengthwise with whitish bands, and becoming pale yellow at maturity. It is entirely covered with fleshy, pointed or bent protuberances, simulating true spines; the fruit attains at maturity a length of 5 cm., with a diameter of 3 to 4 cm. The peduncle is very nearly twice the length of the fruit, the interior of which is entirely filled with the seeds. The flesh itself is far from abundant; it is white, solid, and has a very agreeable cucumber taste, without any bitterness. In the colonies they eat the fruit of this Antillean cucumber cooked or preserved in vinegar." (*Vilmorin-Andrieux & Cie., Plantes Potageres, p. 197–198.*)

38114 and 38115. RUBUS BOGOTENSIS H. B. K. Rosaceæ. **Blackberry.**

From Bogota, Colombia. Procured by Mr. F. L. Rockwood, clerk, American Legation. Received May 7, 1914.

38114. "Seeds of an extra large blackberry from Fusagasuga." (*Rockwood.*)

38115. "Big blackberry from Facatativa, Colombia." (*Rockwood.*)

See S. P. I. Nos. 38054 and 38055 for previous introductions and description.

38116. (Undetermined.)

From Zacuapam, Huatusco, Vera Cruz, Mexico. Presented by Dr. C. A. Purpus. Received May 6, 1914.

38117 to 38135.

From Pago Pago, American Samoa. Presented by Commander C. D. Stearns, Governor of American Samoa. Received April 28, 1914. Quoted notes by Commander Stearns, except as otherwise indicated.

38117 to 38135—Contd. (Quoted notes by Commander Stearns.)

38117. ADENANTHERA PAVONINA L. Mimosaceæ. **Coral-bean tree.**

"*Lopa.* Has red berries that are used for necklaces."

For previous introduction, see S. P. I. No. 36866.

"*La Aulopa.* A handsome deciduous tree. The heart of the wood (of the larger trees) is a deep-red color. It is hard and durable and in India is used at times as a substitute for red sandalwood. Yields a dye."

38118. CALOPHYLLUM INOPHYLLUM L. Clusiaceæ. **Mast wood.**

"A valuable tree; grows tall, with heavy trunk; the wood cuts nearly white but grows red as exposed; it is hard, curly, and heavy, suited to cabinetwork on account of its beautiful red color. Canoes are made of this wood, and it is much used for general purposes. The oil extracted from the seeds is used as a medicine for eye diseases. In southern Polynesia the green, fragrant oil from the nut is used for lamps and as an external remedy for bruises and rheumatism. The resin from the trunk is one of the tacamahac gums of commerce; it is agreeably aromatic (in Tahiti it is used as a scent), yellowish green in color, and soluble in alcohol."

38119. CANNA INDICA L. Cannaceæ. **Canna.**

"*Fagamanu.*"

"*Fanamanu.* In India the seeds are sometimes used for shot, and are made into necklaces and other ornaments; they yield a purple dye, but it is not very permanent. Starch may be obtained from this, but not so good as that from another variety."

38120. CASSIA sp. Cæsalpiniaceæ.

"*Lauvai matui.*"

38121. CAPSICUM FRUTESCENS L. Solanaceæ. **Red pepper.**

"*Polo.* Bush, small Chile pepper."

38122. CORDIA SUBCORDATA Lam. Boraginaceæ.

"Very light wood; serves for floats for fish nets. The berries are used as paste for native cloth. The wood is rather soft, but it is durable and of a rich walnut color; it is much prized in Hawaii, where it is used for cups and poi calibashes. When polished, the wood shows wavy bands of light and dark."

Distribution.—Southeastern Asia and Madagascar and eastward through the Malayan Archipelago to Australia and Hawaii.

38123. CASSIA OCCIDENTALIS L. Cæsalpiniaceæ.

"*Fuefuesina.* A small creeper. The leaves are used by natives as a liniment, and were used in olden times to drive evil spirits from the body."

38124. DYSOXYLUM MAOTA Reinecke. Meliaceæ.

"*Maota.* A short, heavy tree with dense foliage; wood is light colored, straight grained, not durable. It is the favorite tree of the wild pigeon, which eats its fruit."

38125 and 38126. GYNOPOGON spp. Apocynaceæ.

38125. GYNOPOGON sp.

"*Ma Ali.* A large tree, very abundant; wood light slate color, coarse grained, but straight, dry, and light; quite hard; the odoriferous gum is much used by the natives."

38117 to 38135—Contd. (Quoted notes by Commander Stearns.)

38126. GYNOPOGON BRACTEOLOSA (Rich.) Schumann. **Gau.**
(*Alyxia bracteolosa* Rich.)

"*Gau.* A shrub used in making 'ula.'"

38127. HERNANDIA PELTATA Meissner. Hernandiaceæ.

"*Pua.* The wood is very soft and light and takes fire readily from a flint and steel. It has been used in Guam for making canoes, but they soon become water-logged and useless if unpainted and left exposed to the weather. The bark, seeds, and young leaves are slightly purgative, and the juice of the leaves is a depilatory, destroying hair without pain. Distributed in tropical Asia, Africa, and Australia, and eastward in the Pacific as far as Tahiti. The Samoan name signifies 'iris' (of the eye) and is given because of the fruit, which is inclosed in an inflated, globular involucel, having a circular orifice." (*Safford, Useful Plants of Guam.*)

38128. SANTALUM sp. Santalaceæ. **Asi.**

"*Asi.* A kind of sandalwood. Wood used for building purposes."

38129. MACARANGA TANARIUS (Stickman) Muell. Arg. Euphorbiaceæ.

"*Pata.* A very large tree of the forest; the wood, however, is of no value, decaying rapidly."

38130 and 38131. VITEX TRIFOLIA L. Verbenaceæ.

38130. "*Gaunulega.* A small-sized shrub; the leaves when pounded fine and mixed with water form, it is said, a valuable medicine for tropical fever, using three times a day."

Distribution.—Scattered throughout India and eastward and northward to Japan, the Philippines, and northern Australia.

38131. "Said to be a valuable remedy for fever."

38132. CITRUS HYSTRIX DC. Rutaceæ. **Moli.**

"*Moli.* Nonedible. In several islands of the Pacific the fruit is used as soap in washing clothes and the hair."

38133. TACCA PINNATIFIDA Forster. Taccaceæ.

"*Masoa.*"

38134. DIOSCOREA sp. Dioscoreaceæ. **Yam.**

"Yams are troublesome to raise. They are very nutritious, however, and may be prepared in many ways. In many of the islands they are combined with coconut milk and made into dumplings."

38135. INOCARPUS EDULIS Forster. Fabaceæ. **Tahiti-chestnut.**

"Samoan chestnut. One of the most striking features of the forest. It bears a kidney-shaped fruit which is eaten cooked, when not quite ripe, and tastes much like a chestnut. The wood is of light color, straight, of fine texture, and very tough. It is used for burning lime in open kilns, the wood having the remarkable quality of burning readily when green. In some of the Pacific islands the nuts are preserved in pits, like breadfruit, where they ferment. In Samoa it forms a staple food for several months of the year. The wood is perishable and of little economic value; the bark is astringent."

38136. PELARGONIUM CAPITATUM (L.) L'Herit. Geraniaceæ. **Rose geranium.**

From Marseille, France. Presented by Mr. Alphonse Gaulin, American consul general, who secured them through Mr. P. Basson from the Jardin Botanique de Marseille. Received May 20, 1914.

"Rose geranium plants grown in this district. These plants are similar to those grown in the Toulon region." (*Gaulin.*)

38137. PELARGONIUM ODORATISSIMUM (L.) Solander. Geraniaceæ. **Rose geranium.**

From Nice, France. Presented by Mr. William Dulany Hunter, American consul. Received May 20, 1914.

See S. P. I. No. 38056 for description.

38138. MEDICAGO SATIVA L. Fabaceæ. **Alfalfa.**

From Paris, France. Procured from H. Fauchet & Co., through Mr. Alexander M. Thackara, American consul. Received May 9, 1914.

For previous introduction, see S. P. I. No. 34863.

38139. TRIFOLIUM ALEXANDRINUM L. Fabaceæ. **Berseem.**

From Cairo, Egypt. Presented by Mr. Ralph S. Green, through Mr. Olney Arnold, agent and consul general. Received May 18, 1914.

"Our special *Misgawi* [also called *Muscowi* and *Muskawi*] is by far the most important variety. It is tall, luxuriant in growth, and yields an astonishing amount of green forage. It is very largely grown under perennial irrigation. It requires plenty of water and will give four or five cuttings and a seed crop.

"The cultivation of Misgawi berseem is of the simplest nature, as the crop is little trouble after a stand is obtained. The seed is usually sown here in October and November, the amount used being 30 kilos per acre. The method of sowing depends on the locality. In the basins it is sown broadcast on the mud as soon as the water is off. After cotton or doura (maize) there are two chief ways of sowing the berseem. In one the standing crop is heavily watered about 10 days before harvesting, and the seed is broadcast in the water. In the other method the crop is removed and the land ridged; the ridges are split with the native plow. In case the crop is doura on the flat, a single plowing is given with the native plow. The land is then rolled, divided by ridges into convenient areas for watering, watered heavily, and the seed sown broadcast on the water. It sinks to the bottom, and on the removal of the water quickly germinates. In some cases the seed is soaked before sowing to make it sink more readily, but this does not seem to be necessary unless there is wind. Whether it is better to sow among the standing crop or not, depends on the locality. It is better to plow, if possible, but in the northern part of the delta region the cotton picking is late, and if the Misgawi is sown after the cotton is off, it is very slow in coming to maturity, as the cold weather has then set in. It is usual there to sow among the cotton when the land is being flooded after the picking.

"When the seed is sown early, and so gets the benefit of the warm weather, the plant grows rapidly and is watered as often as seems necessary. There is danger in very early sowing, however, as the young plants, particularly in the southern part of the delta region, are subject to the attacks of surface caterpillars and cotton worms. Late sowing, on the other hand, may retard a crop

38139—Continued.

very much, indeed, since cold weather in the early stages will almost stop the growth altogether. About three waterings will be needed before the first cutting, which is taken when the plants are about 25 cms. high. The time elapsing between sowing and first cutting is about 45 to 80 days, according to the character of the weather. In the majority of cases the crop is eaten on the ground by animals; in other cases the crop is cut or pulled by hand and carried. The soil should be just moist enough to stimulate the plant to grow again at once when cut. This is best attained by watering 10 days or so before it is intended to cut it off. A few days after the crop has been removed the land is again watered, and the Misgawi grows very rapidly, usually giving a second cutting in from 25 to 35 days. This crop is treated like the first, and in this way the land is made to give four good cuttings from the main crop. With early sowing a fifth may be gotten, and then the plant is allowed to flower and produce seed. With late planting the fifth cutting would be light, and it is usual to allow it to seed after the fourth.

"The cultural management of our Misgawi berseem is also very simple. Manures are never applied, as the growth is quite satisfactory without them. It will grow well on most cultivated soils. On very light soils drought must be carefully guarded against, and the plants will not grow on salt lands.

"The following are the approximate areas of Misgawi which will carry the various farm animals on average land during the season: Bullock, two-thirds of an acre; cow and young stock, slightly less; horse and mules, half an acre; donkey, one-fourth acre; sheep usually pick up what is left by the other animals and would never be allowed uncut berseem. About one-third more of the first cutting than of the subsequent ones is required for animals." (*Green.*)

"Repeated trials for several years subsequent to 1900 failed to find a region in this country where the temperature conditions were suited to the culture of this plant. It requires cool weather, without frost. For a complete account of this plant as used for forage and soiling in Egypt, see Bureau of Plant Industry Bulletin 23, Berseem: The Great Forage and Soiling Crop of the Nile Valley." (*Fairchild.*)

38140. CROTALARIA JUNCEA L. Fabaceæ. **Sunn hemp.**

From Jubbulpur, Northern Circle, India. Presented by Mr. John H. Ritchie, Deputy Director of Agriculture, at the request of Mr. A. Howard, Imperial Economic Botanist, Pusa. Received May 11, 1914.

"*Sann* hemp. The seed is not of a pure agricultural line, but is simply seed as grown by the Indian ryot and represents the common crop of this district. I may add that all the finest qualities of sunn hemp come from this part of India, which is within the limits of my working circle."

38141. CORCHORUS CAPSULARIS L. Tiliaceæ. **Jute.**

From Dacca, Bengal, India. Presented by the Department of Agriculture at the request of Mr. A. Howard, Imperial Economic Botanist, Pusa. Received May 11, 1914.

"*Bengal* jute."

"*Corchorus capsularis* is an annual plant, growing from 5 to 10 feet high, with a cylindrical stalk as thick as a man's finger, and seldom branching except near the top. The leaves, which are of a light-green color, are about 4 to 5 inches long by 1½ inches broad toward the base, but tapering upward into a long, sharp point with edges cut into sawlike teeth, the two teeth next

38141—Continued.

to the stalk being prolonged into bristlelike points. The flowers are small and of a whitish yellow color, coming out in clusters of two or three together opposite the leaves. The seed pods are short and globular, rough and wrinkled." (*Charles Richards Dodge, Descriptive Catalogue of Useful Fiber Plants of the World*, which see for a brief description of the plant, its cultivation, manufacture, and uses.)

38142 to 38168.

From Ventimiglia, Italy. Presented by Mr. Alwin Berger, curator, La Mortola Garden. Received April 10, 1914. Quoted notes that embody Wilson's numbers are from his original field notes.

38142 and 38143. ASPARAGUS spp. Convallariaceæ. **Asparagus.**

38142. ASPARAGUS COOPERI Baker.

See S. P. I. No. 35089 for previous introduction and description.

38143. ASPARAGUS ASPARAGOIDES (L.) W. F. Wight.
(*Asparagus medeoloides* Thunb.)

See S. P. I. Nos. 18466 and 30014 for previous introduction. The "smilax" of florists.

38144 and 38145. BERBERIS spp. Berberidaceæ. **Barberry.**

38144. BERBERIS GLOBOSA Benth.

See S. P. I. Nos. 31245 and 32920 for previous introductions.

38145. BERBERIS GUIMPELI Koch and Bouche.

See S. P. I. Nos. 32921 and 34304 for previous introductions.

"Small-leaved, short-thorned shrub of upright growth." (*Späth.*)

Referred by Rehder (in Bailey, Standard Cyclopedia) to *B. sinensis*.

38146. BETULA LUMINIFERA Winkler. Betulaceæ. **Birch.**

"(Wilson No. 17.) From Hingshanhsien, western Hupeh, China."

38147. CASUARINA GLAUCA Sieb. Casuarinaceæ. **Belar.**

See S. P. I. No. 18686 for previous introduction.

Distribution.—A large tree found along streams and in the mountains in Queensland, New South Wales, Victoria, and South Australia.

An evergreen tree, 40 to 50 feet high and 1 to 2 feet in diameter, with reddish flowers. The timber is strong and tough, and is used for staves, shingles, etc., also for rails, but not for posts. It is of a red color, beautifully marked, close in the grain, but very brittle. It might be useful for cabinetwork. A specimen of the bark contained 17.2 per cent of extract and 11.58 per cent of tannic acid. (Adapted from *Guilfoyle, Australian Plants*, and *Maiden, Useful Native Plants of Australia.*)

38148. CLERODENDRUM TRICHOTOMUM Thunb. Verbenaceæ.

"Wilson No. 216. From Ichang, western Hupeh, at an altitude of 1,000 meters."

38149 to 38151. COTONEASTER spp. Malaceæ.

38149. COTONEASTER DIVARICATA Rehder and Wilson.

(Wilson No. 232.)

"From thickets, Hingshanhsien, western Hupeh, at altitudes of 1,650 to 2,000 meters, September, 1907 (No. 232, type). This species is most nearly related to *C. simonsii* Baker, from which it is readily

38142 to 38168—Continued.

distinguished by its smaller leaves, constantly fewer flowered racemes, less acuminate sepals, and by its ovoid darker red fruits; in habit and general appearance the two species are very distinct. It seems also related to *C. mucronata* Franchet from Yunnan, which differs chiefly in the lax 2 to 4 flowered racemes and more densely hairy leaves." (*Sargent, Plantae Wilsonianae, vol. 1, p. 157–158, 1912.*)

38150. Cotoneaster horizontalis perpusilla Schneider.

"(Wilson No. 496.) On bare, rocky ground, north and south of Ichang, western Hupeh, at an altitude of 1,300 to 2,000 meters. Prostrate, fruit red."

"This small-leaved form of *C. horizontalis* is the common cotoneaster of the moorlands in western Hupeh, being abundant in open, rocky ground. It is probably merely a climatic form of the type, since the seedling plants under cultivation have the larger leaves of the type." (*Rehder and Wilson. In Sargent, Plantae Wilsonianae, vol. 1, p. 155, 1912.*)

38151. Cotoneaster pannosa Franchet.

See S. P. I. Nos. 32936, 33159, and 37597 for previous introductions and description.

38152. Diospyros lotus L. Diospyraceæ. **Persimmon.**

"(Wilson No. 621.) From Changlohsien, western Hupeh, at an altitude of 1,000 meters."

38153. Hypericum patulum henryi Bean. Hypericaceæ.

((?) Wilson No. 1355.)

"From Tachienlu, western Szechwan, abundant in thickets at altitudes of 1,500 to 2,400 meters, November, 1908. A shrub with golden flowers, from three-fourths to 1 meter tall. This variety is easily distinguished from the type by its narrower acute sepals, which are broad and rounded in the type. The cymes are several to many flowered, the flowers larger and the leaves, too, are usually larger and of thicker texture. At the Arnold Arboretum it has proved of more vigorous growth and hardier than the type." (*Rehder. In Sargent, Plantae Wilsonianae, vol. 2, p. 403, 1915.*)

38154. Jasminum floridum Bunge. Oleaceæ. **Jasmine.**

(Wilson No. 789.)

"From Ichang, Hupeh, at altitudes of 300 to 700 meters, December, 1907. A yellow-flowered bush 1 meter tall." (*Sargent, Plantae Wilsonianae, vol. 2, p. 614, 1916.*)

See S. P. I. No. 35101 for previous introduction and description.

38155. Indigofera amblyantha Craib. Fabaceæ.

(Wilson No. 786.)

"Ichang, western Hupeh, at altitudes of 300 to 1,000 meters, December, 1907. The erect, racemose inflorescence of this pleasing shrub continues to grow and bear flowers from mid-July until late autumn. The flowers vary from pale rose to red pink and are very freely produced. The shrub is common in western Hupeh but has not been recorded from Szechwan." (*Sargent, Plantae Wilsonianae, vol. 2, p. 99–100, 1914.*)

38142 to 38168—Continued.

38156. Campylotropis macrocarpa (Bunge) Rehder. **Fabaceæ.**
(*Lespedeza macrocarpa* Bunge.)

(Wilson No. 576.)

"A bush 1 to 2 meters high, flowers pale purple, from thickets at an altitude of 1,000 to 1,600 meters, Hingshanhsein, western Hupeh, November, 1907." (*Sargent, Plantae Wilsonianae, vol. 2, p. 113, 1914.*)

38157. Prunus cerasifera divaricata (Ledeb.) Schneider. Amygdalaceæ. **Cherry.**

See S. P. I. Nos. 37463, 37464, and 37688 for previous introductions and description.

"A deciduous tree with the same habit and general aspect as *P. cerasifera;* neither does it appear to differ in the flowers or foliage. The fruit, however, is smaller (about three-fourths of an inch across), yellow, and not indented at the junction with the stalk. Probably this tree and *P. cerasifera* are only varieties of one species. They flower at the same time, and are not distinguishable then. There is an old specimen near the Cactus House at Kew which is probably one of the largest in the country. It is 25 feet high, 27 feet through, and its trunk is 3 feet 8 inches in girth. Quite possibly trees may be growing in various gardens as *P. cerasifera.* The trees at Kew have rarely borne fruits, but these are quite distinct from cherry plums (*P. cerasifera*). The species is said to be a native of the Caucasus, Persia, Macedonia, etc., and to have been introduced in 1822." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 235.*)

38158. Rhus punjabensis sinica (Diels) Rehder and Wilson. Anacardiaceæ. **Sumach.**

(Wilson No. 275.)

"From woodlands, north and south of Ichang, at altitudes of 1,000 to 1,600 meters, September, 1907. A small tree 5 to 8 meters tall; flowers whitish, fruit crimson. This variety differs from the type chiefly in the slightly winged upper part of the rhachis of the leaf, and in the usually fewer and more sessile leaflets. The fruits agree exactly with those of *R. punjabensis.* In cultivated plants from 4 to 6 years old the wing on the rhachis is very pronounced and continues down its whole length. The differences, however, are not always obvious, but until more is known of the distribution of these plants it is convenient to keep the Chinese as a distinct variety. This sumach is abundant in the thickets and margins of woods in western Hupeh and Szechwan as a small tree with a short, relatively thick trunk covered with dark-gray, moderately smooth bark. The numerous branches are spreading and form a flattened round head. In autumn when laden with pendulous panicles of dark red or crimson this tree is very attractive. Colloquially this tree is known as the *Hung fu yang* and the galls which are produced on the leaves and at the ends of the young shoots are sometimes distinguished as *Tu pei tzu,* but more usually are called *Wu pei tzu,* though this name strictly speaking belongs to the galls produced on the leaves of *R. javanica.*" (*Sargent, Plantae Wilsonianae, vol. 2, p. 176–177, 1914.*)

38142 to 38168—Continued.

38159 to 38166. Rosa spp. Rosaceæ. **Rose.**

38159. Rosa soulieana Crep.

See S. P. I. Nos. 21747 and 32962 for previous introductions.

38160. Rosa xanthina × (?).

Hybrid.

38161. Rosa rubus Léveille and Vant.

"Wilson No. 431. From Patung, western Hupeh, at an altitude of 600 to 1,300 meters."

"This is a common species everywhere in western Hupeh and eastern Szechwan from river level to 1,300 meters. The densely hairy shoots and leaves readily distinguish it from its near relatives. The leaflets are often large and coarsely toothed, and the leaves though variable in shape resemble those of certain species of *Rubus*. The fruit is globose, and the pedicels are relatively long and stout." (*Sargent, Plantae Wilsonianae, vol. 2, p. 309, 1915.*)

38162. Rosa banksiae normalis Regel.

"(No. 619. Near Ichang, Hupeh, China. October, 1907.) A scandent bush 6 meters and more tall and as much in diameter, flowers pure white, fragrant, fruit dull red, abundant. This rose is very abundant in western Hupeh and eastern Szechwan from river level to 1,000 meters altitude, and is fairly common in western Szechwan in the valleys of the Tung and Min Rivers and neighboring regions up to 1,500 meters altitude. It delights in glens, ravines, and rocky places generally, where it forms tangled masses 6 meters and more high and as much in diameter; commonly it rambles over trees, and Wilson has seen trees 15 meters and more tall completely festooned with this rose. The flowers are always pure white, and we have never observed any tendency toward double flowers in the wild plant; nor did Wilson see it or any of its forms cultivated in gardens in central or western China. The umbellate inflorescence well distinguishes this species from its nearest relation *Rosa microcarpa* Lindley. The root bark is used locally for strengthening and dyeing fishing nets brown. This variety appears to be confined to central and western China, and we have seen no specimens of the wild plant from regions east of the 112th meridian of longitude." (*Sargent, Plantae Wilsonianae, vol. 2, p. 317, 1915.*)

38163. Rosa helenae Rehder and Wilson.

"Wilson No. 666. From Wushan, eastern Szechwan, at an altitude of 1,000 to 1,500 meters."

"*Rosa helenae* is very abundant in rocky places from river level to 1,500 meters everywhere in western Hupeh and eastern Szechwan, but has not yet been reported from farther west. It forms in wayside thickets and by the banks of streams tangled masses often 6 meters tall and as much through, and in the margins of woods it rambles over small trees. When covered with masses of its white fragrant flowers this rose is very beautiful. It has proved quite hardy and flowered profusely at the Arnold Arboretum." (*Sargent, Plantae Wilsonianae, vol. 2, p. 311, 1915.*)

38142 to 38168—Continued.

38164. ROSA RUBUS Léveillé and Vant.

"Wilson No. 666A. From Hingshanhsien, western Hupeh, at an altitude of 1,300 meters."

38165. ROSA BRUNONII Lindl.

"Wilson No. 1125. From Washan, western Hupeh, at an altitude of 1,300 to 2,000 meters."

"*Rosa brunonii* is fairly common in the valley of the Tung River, where it forms tangled masses 6 meters and more high and as much in diameter." (*Sargent, Plantae Wilsonianae, vol. 2, p. 307, 1915.*)

38166. ROSA FILIPES Rehder and Wilson.

"Wilson No. 1228 [received as No. 1128]. From near Wenchwan, western Szechwan, at altitudes of 1,300 to 2,300 meters."

A white-flowered shrub up to 15 feet in height, with a few hooked prickles and producing long runners. The scarlet, globose fruits are up to one-half inch in diameter. This rose is a native of western China. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2997.*)

38167. SPIRAEA JAPONICA ACUMINATA Franch. Rosaceæ.

(Wilson No. 579.)

"A pink-flowered bush, three-fourths to 1½ meters high, from roadsides south of Ichang, western Hupeh, at altitudes of 1,000 to 1,700 meters, November, 1907." (*Sargent, Plantae Wilsonianae, vol. 1, p. 452, 1912.*)

"This species of *Spiraea*, which is a native of the northern part of China and Japan, is a handsome, hardy, deciduous shrub with brilliant rose-colored flowers, which are produced in July and August. In general appearance this species resembles the Nepal *Spiraea bella*, but is far more ornamental on account of the brilliant tint of its petals, especially when the flower buds first begin to expand. The leaves are dark green, the under sides being glaucous but not hairy." (*Paxton, Flower Garden, vol. 11, p. 113.*)

38168. VITIS RETICULATA Gagnep. Vitaceæ.

(Wilson No. 378.)

"From cliffs at altitudes of 900 to 1,500 meters, Hingshanhsien, western Hupeh, October, 1907." (*Sargent, Plantae Wilsonianae, vol. 1, p. 103, 1911.*)

38169 and 38170. STIZOLOBIUM CINEREUM Piper and Tracy. Fabaceæ.

From Amani, German East Africa. Presented by the Kaiserlich Biologisch Landwirtschaftliches Institut. Received May 9, 1914.

38169. *Mangutungu.* From Alt Langenburg. 02101.

38170. *Lusumbi.* From Usumbwa, Tabora, German East Africa. January, 1914.

"02102. Apparently identical with S. P. I. No. 32021." (*C. V. Piper.*)

38171 to 38174.

Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received April 13, 1914. Quoted notes by Messrs. Dorsett, Shamel, and Popenoe.

38171 to 38174—Contd. (Quoted notes by Mr. Dorsett and others.)

38171. Rollinia deliciosa Safford. Annonaceæ. Fruta de condessa.

"(No. 224a. Rio de Janeiro, Brazil. March 20, 1914.) The *fruta de condessa* (fruit of the countess), indigenous in the State of Rio de Janeiro, whence the fruit is shipped to the markets of the capital and sold there at 100 to 400 reis (3 to 12 cents) apiece. In general form the fruit is conical to cordate, frequently 3 to 4 inches in diameter. The surface is covered with conical protuberances of varying prominence, and is creamy yellow in color when the fruit is fully ripe. The skin is rather tough and not easily broken; it surrounds the milky white, somewhat mucilaginous flesh, in which the seeds are embedded. The flavor is somewhat insipid, but is much esteemed by the Brazilians, as evidenced by the quantity of the fruit sold. The seeds are not so numerous as in many other annonaceous fruits, but they are about the same size as those of cherimoya. The fruit ripens in February and March in this region. Should be given a trial in Florida and southern California, particularly as a stock for the cherimoya and other choice annonaceous fruits."

38172. Mimusops sp. Sapotaceæ.

"(No. 225a. Rio de Janeiro, Brazil, March 22, 1914.) A small sapotaceous fruit from the Jardim Botanico. Tree about 20 feet high. Fruit oval, slightly under 1 inch in length, maroon in color. The flesh surrounding the single seed is whitish and of very pleasant flavor, resembling that of the sapodilla."

38173. Holcus sorghum L. Poaceæ. Sorghum.
(*Sorghum vulgare* Pers.)

"(No. 226a. From Barbados, British West Indies. April 5, 1914.) One head of sorghum, collected in a field near Bridgetown, where it was being cultivated."

38174. Solanum sp. Solanaceæ.

"(No. 227a. Brazil.) Data concerning seed has been lost, but it probably came from the interior of Bahia State, Brazil."

38175. Parinari excelsum Sabine. Rosaceæ.

From Mount Coffee, Liberia. Presented by Mr. Henry O. Stewart. Received May 11, 1914.

Rough-skinned plum (?).

"The fruit is about the size of an *Imperatrice* plum, covered with a rough skin of a grayish color, and commonly called the *Rough-skin* or *Gray* plum. It is brought into the market on the west coast of Africa, but is not much esteemed on account of the small quantity of edible matter it contains, which is only the dry farinaceous substance surrounding the large stone." (*Lindley, Treasury of Botany, vol. 2, p. 846.*)

38176 to 38182.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received May 14–15, 1914. Quoted notes by Mr. Meyer.

38176. Crataegus pinnatifida Bunge. Malaceæ. Hawthorn.

"(No. 1209. Village of Tachingko, near Taianfu, Shantung, China. March 21, 1914.) A large-fruited variety of Chinese hawthorn, fruit

38176 to 38182—Continued. (Quoted notes by Mr. F. N. Meyer.)

said to be red outside and inside. Of agreeable sour taste. Can be kept almost a year. A most excellent fruit for jellies, compotes, cake fillings, etc. Chinese name *Ta suan cha*, meaning 'large sour haw.'"

Grafted trees and scions.

38177. Osterdamia sp. Poaceæ.

"(No. 1212. Mountains near Taianfu, Shantung, China. March 22, 1914.) A grass of low growth and of spreading habits, thriving to perfection on thin, decomposed rock soil, along mountain paths where much tramping takes place; also found on inclines, where the mat of roots prevents the soil from being washed out. Of decided value, apparently, as a bank, lawn, and golf-course grass, especially for the drier parts of the United States."

38178. Amygdalus persica L. Amygdalaceæ. **Fei peach.**
(*Prunus persica* Stokes.)

"(No. 1213. Feicheng, Shantung, China. March 27, 1914.) A remarkable variety of clingstone peach, considered to be the best in all China. Size large to very large; shape round; very heavy, often over 1 pound apiece; skin quite downy and of a pale yellowish color with a slight blush on one side. Meat very juicy and sweet and of excellent aromatic flavor, of white color except near the stone, where it is reddish. Stone very large and pointed, meat strongly adhering to it. Ripens in early to middle October and possesses excellent shipping and keeping qualities. The trees are of erect growth when young; when older, however, they spread out considerably, but they remain of open growth. To reach their greatest perfection these peaches are fertilized every spring, while during a dry season they are irrigated from wells; the fruit is also thinned out. The soil wherein they seem to thrive best is a porous, light clayey loam of reddish color, retaining moisture quite well but not becoming too soggy. The local people calculate that on an average a tree supplies $10 worth (Mexican) of fruit each season, and they consider an orchard of these trees a very valuable asset indeed. The climate around Feicheng is of a semiarid nature, and this variety of peach may be expected to thrive especially well in the regions west of the Rocky Mountains. Chinese name *Fei t'ao*, meaning 'Fei peach.'"

Grafted trees and scions.

38179. Salix sp. Salicaceæ. **Willow.**

"(No. 1179. Village of Chenkiao, Honan, China. March 8, 1914.) A willow of golden yellow color, much planted on the sandy flats along the Yellow River for sand-binding purposes. Of value for similar uses, especially for the drier parts of the United States."

38180. Zinziber officinale Rosc. Zinziberaceæ. **Ginger.**

"(No. 1214. Feicheng, Shantung, China. March 26, 1914.) A variety of ginger grown on sandy loam in the vicinity of Minyang to the south of Taianfu. Much hawked about throughout Shantung and retailing at from 10 to 12 cents (Mexican) per pound. Is much relished as a condiment in soups and with meat dishes and considered to be very healthful, so much so in fact that Confucius advised his pupils to make ginger one of their relishes to be eaten daily. The Chinese plant the rhizomes as soon as the soil becomes warm and harvest the plants in the autumn after a light frost; the rhizomes are stored in cool dugouts and kept

38176 to 38182—Continued. (Quoted notes by Mr. F. N. Meyer.)

covered over with slightly moist, sandy soil. Chinese name *Hsien chiang*, meaning 'fresh ginger.'"

Rhizomes.

38181. QUERCUS LIAOTUNGENSIS Koidzumi. Fagaceæ. **Oak.**

"(No. 188a. Hsiao Wutaishan, Chihli Province, China. August 25, 1913.) A low-growing, scrubby oak, found in thickets at elevations between 5,000 and 7,000 feet above sea level. Looks in leaf very much like *Q. pedunculata.* Of value as a shade tree in parks and as a ground cover on mountain slopes in the cooler parts of the United States."

38182. CASTANEA MOLLISSIMA Blume. Fagaceæ. **Chestnut.**

"(No. 2013a. Chiningchow, Shantung, China. March 16, 1914.) A Chinese chestnut, of which the nuts have a somewhat peculiar form, being bent in at their tops. From the Taishan region near Taianfu, Shantung, where the trees are all badly attacked by the bark disease *Endothia parasitica.*"

38183. HOLCUS SORGHUM L. Poaceæ. **Giant Sudan sorghum.**

(*Sorghum vulgare* Pers.)

From Algiers, Algeria. Presented by Dr. L. Trabut. Cuttings received May 14, 1914.

"The stalk of this sorghum is very tall, sometimes reaching a height of 4.24 meters. The leaves are large and the panicles are small. This sorghum does not mature in Algiers but is propagated by cuttings." (*Trabut.*)

38184 to 38187.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received at the Plant Introduction Field Station, Chico, Cal., May 4, 1914. Cuttings of the following; quoted notes by Mr. Meyer.

38184. PAULOWNIA FORTUNEI (Seem.) Hemsley (?). Scrophulariaceæ.

"(No. 1180. Village of Chenkiao, Honan Province, China. March 8, 1914.) A Paulownia, planted here and there on sandy lands as a soil binder and windbreak. The wood is of a very light nature and is used in the construction of light furniture, playthings for children, bowls, jars, etc. Of value as a soil binder and an ornamental park tree, especially for the mild-wintered sections of the United States. Chinese name *T'ung shu.*"

Root cuttings.

38185. PUNICA GRANATUM L. Punicaceæ. **Pomegranate.**

"(No. 1186. Tsaochowfu, Shantung, China. March 10, 1914.) A pomegranate, producing very large double flowers of a brilliant red color. No fruits are set. Chinese name *Shuang shih liu hua*, meaning 'double-flowering pomegranate.' Obtained from the garden of the Roman Catholic Mission at Tsaochowfu."

38186. VITIS VINIFERA L. Vitaceæ. **Grape.**

"(No. 1187. Tsaochowfu, Shantung, China. March 10, 1914.) A Chinese variety of grapevine, producing large bunches of black grapes, the individual berries of which are very elongated. This grape is very sweet and possesses good keeping and shipping qualities. Chinese name *Nai tzŭ p'u t'ao*, meaning 'nipple grape.'"

38184 to 38187—Continued. (Quoted notes by Mr. F. N. Meyer.)

38187. ZIZIPHUS JUJUBA Miller. Rhamnaceæ. Jujube.
(*Ziziphus sativa* Gaertn.)

"(No. 1188. Near Kuyehsien, Shantung, China. March 14, 1914.) A large-fruited variety of jujube of oblong shape and reddish brown color. Good for drying. Local name *Ta tsao*, meaning 'large jujube.'"

38188. CASTILLA NICOYENSIS O. F. Cook. Moraceæ.
Central American rubber.

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, Department of Agriculture. Received May 14, 1914.

See S. P. I. Nos. 33784 and 35892 for previous introductions and description.

38189 and 38190. TRIFOLIUM PRATENSE L. Fabaceæ. **Red clover.**

From Rosthern, Saskatchewan, Canada. Presented by Mr. Seager Wheeler, through the Office of Forage-Crop Investigations. Received May 11, 1914.

"Seed of red clover grown at Rosthern, Saskatchewan, Canada. It was grown under very severe winter conditions and is expected to prove extremely hardy." (*J. M. Westgate.*)

38189. From seed of S. P. I. No. 31205.

38190. From seed of S. P. I. No. 31232.

38191. BERTHOLLETIA NOBILIS Miers. Lecythidaceæ. **Brazil nut.**

From Para, Brazil. Presented by the American consul. Received May 13, 1914.

38192 and 38193. DIOSPYROS spp. Diospyraceæ.

From Buitenzorg, Java. Presented by the director, Botanic Gardens. Received May 15, 1914.

38192. DIOSPYROS DISCOLOR Willd. **Mabola.**

See S. P. I. Nos. 19216, 26112, and 30518 for previous introductions and description.

"A tree of moderate size, 40 feet or more high; the trunk furnishes a hard, compact ebony of an exceedingly black color. Fruit thick, fleshy, globose or subglobose, densely hairy, reddish, like a quince, 4 to 6 seeded, with flesh rose colored, 3 to 4 inches in diameter; pulp white, hairs ferruginous; albumen cartilaginous, not ruminated; fruiting calyx flattish, appressed, rather more than 1 inch in diameter. The wood is very hard, of a dark flesh color, which in time becomes black like ebony. The fruit has an agreeable smell like a quince (but sometimes not so), and is edible after removing the hairs and skin." (*Hiern, Monograph of the Ebenaceæ, p. 251, 1873.*)

38193. DIOSPYROS SUBTRUNCATA Hochreutiner. **Persimmon.**

Distribution.—A persimmon found in Sumatra, closely related to *D. borneensis* Hiern, from which it differs in having the calyx truncate, the corolla tomentose outside, and a slightly larger fruit.

38194 to 38205. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Sapporo, Japan. Presented by Mr. T. Minami, College of Agriculture, Tohoku Imperial University. Received May 13, 1914. Seeds produced in Manchuria last year; quoted notes by Mr. Minami.

38194. "(No. 1.) *Kokkoku kinsui* (means red glume and thick ear)."

38195. "(No. 2.) *Kōnen-kōryō* (means red glutinous sorghum)."

38196. "(No. 3.) *Gai-hansaku* (meaning is not clear)."

38197. "(No. 4.) *Shōkōwaishin-han-kōryō* (means small yellow dwarf)."

38198. "(No. 5.) *Nen-kōryō-kō* (means glutinous sorghum which is red)."

38199. "(No. 6.) *Shōkōkoku-han-kōryō* (small yellow glume)."

38200. "(No. 7.) *Kokkoku dagan-kōhan-kōryō* (means black glume and red grain, looks like snake's eye)."

38201. "(No. 8.) *Kokkoku sasui* (means black glume and loose ear)."

38202. "(No. 9.) *Chikuyō-seihan-kōryō* (means bamboo leaf and green grain)."

38203. "(No. 10.) *Kokkoku hakunen-kōryō* (means black glume and white glutinous grain)."

38204. "(No. 11.) *Kokoku waishin-han-kōryō* (means black glume and dwarf)."

38205. "(No. 12.) *Kijaku-haku-han-kōryō* (means white grain which is very much liked by swallows)."

38206 and 38207.

From Tokyo, Japan. Procured from the Tokyo Plant, Seed & Implement Co. Received May 14, 1914.

38206. PRUNUS SERRULATA Lindl. Amygdalaceæ. **Flowering cherry.**

"Young shoots slightly hairy. Leaves broadly ovate or obovate, 2 to 4½ inches long to 1¼ to 2¼ inches wide; wedge shaped or almost rounded at the base, the apex abrupt narrowed to a long point, margins doubly toothed, both surfaces, but especially the lower one, hairy on the midrib and veins; stalk one-fourth to half an inch long; hairy. Flowers in short racemes, sometimes reduced to a fascicle of usually four blossoms; each flower three-fourths of an inch across, the five petals jagged at the apex, borne on a bristly hairy stalk one-half to three-fourths of an inch long; calyx tube hairy; the lobes ovate triangular; glabrous." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles*, under *P. pseudocerasus.*)

Introduced for use as a stock on which to test both the fruiting cherries and the Japanese double-flowered forms.

37207. PISUM SATIVUM L. Fabaceæ. **Pea.**

38208. MEDICAGO SATIVA L. Fabaceæ. **Alfalfa.**

From Batum, Russia. Presented by Mr. Leslie A. Davis, American consul. Received May 16, 1914.

"Grown in the Caucasus. I think a better quality is grown in Turkestan and that the Turkestan seed is planted in the Caucasus to some extent." (*Davis.*)

38209. ANACARDIUM EXCELSUM (Bert. and Bal.) Skeels. Anacardiaceæ.
(*Anacardium rhinocarpus* DC.)

From Santiago de las Vegas, Cuba. Presented by Mr. J. T. Crawley, director, Agricultural Experiment Station. Received May 18, 1914.)

"Fruits of a rare tree. This fruit was collected at Casilda, Trinidad, Santa Clara Province, and is commonly known as *nariz* on account of its similarity to the fruit of the *Marañon* (*Anacardium occidentale*) in appearance, foliage, and inflorescence. It is a very tall tree; the leaves are very large and the peduncle not so succulent as in the *Marañon*. The botanist thinks that it could perhaps be *Anacardium rhinocarpus*, and says that it is found only in the district of Trinidad, and no use is made of the tree or its fruits." (*Crawley.*)

38210 to 38212.

From Asmara, Eritrea, Africa. Presented by the Direzione di Colonizzazione Service. Received May 18, 1914.

38210. COLUTEA ISTRIA Miller. Fabaceæ.
(*Colutea halepica* Lam.)

See S. P. I. No. 33029 for previous introduction.

"A shrub 1 to 4 meters high with the appearance of *C. arborescens*, from which it differs in its smaller, oblong, slightly silky leaves, in its raceme of 2 to 4 flowers, and in its legumes, which are more acute at the two extremities. Rocky places of the Altipiano and its slopes, at 1,600 to 2,600 meters." (*Adriano Fiori, Boschi e Piante legnose dell' Eritrea, p. 184.*)

38211. SESBAN sp. Fabaceæ. **38212.** (Undetermined.)

38213 to 38228.

From Tokyo, Japan. Presented by the director, Japanese Imperial Department of Agriculture. Received May 15, 1914.

38213 to 38220. SOJA MAX (L.) Piper. Fabaceæ. **Soy bean.**
(*Glycine hispida* Maxim.)

38213. *Tsurunoko.*
38214. Var. *Aksaya.*
38215. *Gowari.*
38216. *Hadaka.*
38217. *Aotsurunoko.*
38218. *Kōsuirasu.*
38219. Var. *Juningonomi.*
38220. *Aoniūdō.*

38221 to 38227. ORYZA SATIVA L. Poaceæ. **Rice.**

38221. Var. *Shinriki.*
38222. Var. *Aikoku.*
38223. *Takenari.*
38224. *Omachi.*
38225. *Kame-no-o.*
38226. *Ōbō.*
38227. *Shekitori.*

38228. SOJA MAX (L.) Piper. Fabaceæ. **Soy bean.**
(*Glycine hispida* Maxim.)

Shirashaya.

38229. DIOSCOREA sp. Dioscoreaceæ. **Yam.**

From Brooklyn, N. Y. Purchased from Mr. A. I. Wilson. Received May 22, 1914.

"Yams sell at 6 cents per pound." (*Wilson.*)

"A yam of good quality. The flesh is mealy, yet firm and of good flavor. The specimen received weighed 6 pounds." (*R. A. Young.*)

38230 to 38285.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received at the Plant Introduction Field Station, Chico, Cal., March 30, 1914. Quoted notes by Mr. Meyer.

38230. PRUNUS ARMENIACA L. Amygdalaceæ. **Apricot.**

"(No. 1105. Sianfu, Shensi, China. January 30, 1914.) An apricot, said to bear large fruits, besides being very ornamental when in blossom. The trees grow to a remarkably large size. Scions collected in an old mandarin's garden."

38231. MALUS sp. Malaceæ. **Crab apple.**

"(No. 1106. Sianfu, Shensi, China. January 30, 1914.) A flowering crab apple, of low-branching, wide-spreading growth, said to bear masses of small double flowers of rosy red color. Scions obtained from the garden of the English Baptist Mission Hospital."

38232. POPULUS sp. Salicaceæ. **Poplar.**

"(No. 1108. Village of Beetchi, near Fuping, Shensi, China. February 2, 1914.) A poplar of remarkable fastigiate growth, used as a windbreak on a dry loess table-land. Apparently the same as No. 1064 [S. P. I. No. 37482], but possibly more drought resistant. Of value as a windbreak for the drier parts of the United States."

Cuttings.

38233 to 38235. SALIX sp. Salicaceæ. **Willow.**

From the village of Tungchiaopu, Shensi, China. Cuttings collected February 3, 1914.

38233. "(No. 1120.) A willow, growing to be a tall tree with heavy trunk. The main branches are of erect growth and of dark-green color, but the young twigs are slender and gracefully drooping while possessed of a delicate yellowish color. A fine tree for parks, especially when planted in a clump or as solitary specimens, where they can be seen from some distance."

38234. "(No. 1121.) A willow, forming heavy trunks, of erect-spreading growth, while the reddish colored young twigs are slightly drooping. Of value for parks when planted in clumps or as solitary specimens where they can be seen for some distance."

38235. "(No. 1122.) A willow, growing to be a tall tree, forming heavy trunks with dark-brown bark. The young branches are somewhat pendent. This and the preceding two numbers [S. P. I. Nos. 38233 and 38234] are all three grown locally as timber trees. They seem to be of remarkably fast growth, especially when planted alongside irrigation canals."

38236. WIKSTROEMIA CHAMAEDAPHNE (Bunge) Meissner. Thymelæaceæ.

"(No. 1124. Near Kwanshanchen, Shensi, China. February 4, 1914.) Rooted plants of a thymeleaceous small shrub, growing from 1 to 3 feet in height, having somewhat leathery, small foliage, which is semipersistent throughout winter; bears small terminal racemes of yellow flowerlets. Found here and there on dry banks and hill slopes in great quantities. The bark is of a tenacious nature and the plant might possibly be cultivated as a prospective leather-paper supply."

38230 to 38285—Continued. (Quoted notes by Mr. F. N. Meyer.)

38237. EUONYMUS sp. Celastraceæ.

"(No. 1125. Village of Tchangpai, Shensi, China. February 5, 1914.) Cuttings of spindle wood, usually seen as a shrub, but when not molested growing to be a medium-sized tree. The plant is an excellent bank binder, throwing up suckers all around; it stands drought to a wonderful extent, while it resists alkali also to a certain degree. In most places this shrub is cut down every year, but this treatment seems to make it spread more. It deserves to be given a thorough test as a bank and soil-binding plant, especially in the semiarid parts of the United States."

38238. SALIX sp. Salicaceæ. **Willow.**

"(No. 1126. Near Chaoyi, Shensi, China. February 7, 1914.) Cuttings of a willow of wide-spreading growth, forming a characteristically well rounded head when becoming older. Apparently able to stand a goodly amount of drought and alkali."

38239. GLEDITSIA sp. Cæsalpiniaceæ.

"(No. 1128. Near Puchowfu, Shansi, China. February 8, 1914.) A very thorny shrub of rather tall growth, occurring on dry places. Said to bear whitish flowers. Of value perchance as a hedge shrub for the drier sections of the United States. Chinese name *Lang ya ch'ih*, meaning 'wolf's teeth.' Roots, to be planted slantingly."

38240 to 38242. PYRUS CHINENSIS Lindl. Malaceæ. **Pear.**

From near Puchowfu, Shansi, China. Scions or cuttings collected February 10, 1914.

38240. "(No. 1136.) A very large variety of Chinese pear, producing fruits that often weigh 1 pound apiece. Of barrel shape, color dark yellow, flesh nonmelting, somewhat coarse in texture, but juicy and sweet to the taste. Possesses good keeping and shipping qualities. Of value for hybridization experiments. Chinese name *Chin li*, meaning 'golden pear.'"

38241. "(No. 1137.) A variety of Chinese pear, of medium large size, of round form, color pale yellow, flesh nonmelting, of somewhat granular texture, juicy, and of but moderately sweet taste. Of value for hybridization experiments and for canning purposes. Chinese name *Pai li*, meaning 'white pear.' This *Pai li* is quite different from the Peking pear that passes under the same name."

38242. "(No. 1138.) A variety of Chinese pear of apple shape and looks, being red cheeked on one side and ocher yellow on the other. Flesh hard and sourish. A most remarkable keeper and shipper. Of value as a cooking pear, for sauces, and possibly in hybridization experiments. Chinese name *Hung hsiao li*, meaning 'red sour pear.'"

38243 to 38247. ZIZIPHUS JUJUBA Miller. Rhamnaceæ. **Jujube.**
(*Ziziphus sativa* Gaertn.)

From near Paihsiangchen, Shansi, China. Scions collected February 13, 1914.

38230 to 38285—Continued. (Quoted notes by Mr. F. N. Meyer.)

38243. "(No. 1140.) A very valuable variety of jujube, producing fruits among which there are some as large as ordinary hens' eggs; fruits of roundish oblong form, of somewhat cylindrical shape; color mahogany brown; meat quite sweet and of a solid texture. This is one of the most famous jujubes of all China, and merchants come from far away to buy them up. The fruits can be eaten fresh, sun dried, baked in bread, stewed with rice, millet or meat, dry baked in the oven, preserved with honey and cane sugar, and also put up in weak brandy, tasting very well in each of these ways. They are also prized for medicinal purposes, especially when several years old, and, though 1-year-old fruits retail locally at 8 to 10 cents (Mexican) per catty, fruits 7 to 10 years old sell at $1 (Mexican) and over for the same weight. They are used for relief of pain in the chest and respiratory organs and are considered to be very strengthening. The trees of this variety appear not to grow to large size; they are of open, loose habit, and do not produce fruit of uniform size. In the vicinity of Paihsiangchen several thousand acres are given over to their cultivation, and it seems to be a paying industry, as the acreage is constantly being enlarged. Propagation is done only by planting suckers; grafting, budding, and ringing seem to be unknown to the local people. A peculiar bunch disease is much in evidence on this variety as well as on other varieties, and growers complain that it is causing considerable reduction of the crop; they do not combat it, however, by cutting the bunches out. Special attention should be paid in America that this disease does not get a foothold. Chinese name of this variety *Ta yüan tsao*, meaning 'big round jujube.'"

38244. "(No. 1141.) A local variety of jujube, producing fruits of medium size, of elongated cylindrical shape; color, light mahogany brown. Can be eaten fresh, but they are best when put up in weak brandy. Chinese name *T'iao tsao*, meaning 'stick jujube,' referring to the shape of the fruit."

38245. "(No. 1142.) A variety of jujube, said to be of medium size, of tapering, elongated form, good only when fresh. Chinese name *Shui mên tsao*, meaning 'water-breath jujube.'"

38246. "(No. 1143.) A variety of jujube of medium size, of oblong-pointed form; color, light mahogany brown. Fruits can be brandied. Trees of vigorous growth, making long, outstretched branches. Chinese name *Chi hsin tsao*, meaning 'chicken-heart jujube.'"

38247. "(No. 1144.) A variety of jujube, said to be of medium size, of round form; color, dark mahogany brown; meat somewhat brittle. Good only when fresh. Chinese name *Yüan ts'ui tsao*, meaning 'round, fragile jujube.'"

38248. JASMINUM NUDIFLORUM Lindley. Oleaceæ. Jasmine.

"(No. 1145. Paihsiangchen, Shansi, China. February 14, 1914.) A yellow-flowered jasmine occurring at the edges of dry banks, ravines, and grave mounds, flowering before the leaves come out, sometimes even in midwinter. The plants are of spreading habit, the very long, slender,

38230 to 38285—Continued. (Quoted notes by Mr. F. N. Meyer.)

and angular green branches rooting wherever they touch moist ground and making a regular matting of living twigs, keeping soil and stones from moving away. This plant is by its nature fit to cover rockeries, to be grown at the edges of terraces, to cover old walls, etc., and deserves to be given a thorough test as a bank and soil binder, especially in the sections of the United States where the winters are not too severe, while the summers can be hot and dry. Chinese name *Ying ch'un hua*, meaning 'meeting-the-spring flower.'"

Cuttings.

38249 to 38253. ZIZIPHUS JUJUBA Miller. Rhamnaceæ. **Jujube.**
(*Ziziphus sativa* Gaertn.)

Scions of the following:

38249. "(No. 1146. Fuma, near Anyihsien, Shansi, China. February 14, 1914.) A variety of jujube supposed to be the largest of all; fruits are said to be larger than ordinary hens' eggs and resemble small pears; oval shape; color, mahogany brown. This variety is said to have originated through having grafted an ordinary jujube on pear roots(?). Chinese name *Li tsao*, meaning 'pear jujube.' Good only when eaten fresh."

38250. "(No. 1147. Village of Nanyangyao, near Anyihsien, Shansi, China. February 14, 1914.) A variety of jujube of peculiar shape, the top being larger than the base in some fruits and protruding above it with a circular constriction just below, giving the impression of one fruit placed above another; size, medium; color, light mahogany. Can be eaten fresh or put up in weak brandy. Chinese name *P'o p'o tsao*, meaning 'mother-in-law jujube,' having reference to the peculiar shape of the fruit, in connection with the fact that a Chinese wife generally sits under the rule of her husband's mother."

38251. "(No. 1148. Village of Siaoshu, near Anyihsien, Shansi, China. February 14, 1914.) A variety of jujube of oval, tapering shape, medium sized; color, light brown-red. Can be put up in weak brandy. Chinese name *Kên tsao*, meaning 'hard jujube.'"

38252. "(No. 1149. Village of Nantsunwu, near Anyihsien, Shansi, China. February 14, 1914.) A variety of jujube, the fruits of which are said to be flat in shape and somewhat undulated. The branches are curiously bent and twisted, while the tree assumes a beautiful bowl-like form. Chinese name *Kuai tsao*, meaning 'bent jujube.'"

28253. "(No. 1150. Village of Nantsunwu, near Anyihsien, Shansi, China. February 14, 1914.) A variety of jujube, said to be much like the preceding (No. 1149); the branches, however, are less twisted, while the form of the tree is more open and loose."

38254. CATALPA BUNGEI C. A. Meyer. Bignoniaceæ.

"(No. 1151. Village of Wangyuko, near Anyihsien, Shansi, China. February 15, 1914.) A quick-growing Chinese timber tree, growing to large size, specimens being seen 100 feet tall, with trunks 10 to 15 feet in circumference a few feet above the ground. The Chinese plant this tree for its wood, which is strong, light, durable, and nonwarping. It resembles walnut to some extent and is much in demand for table tops and for

38230 to 38285—Continued. (Quoted notes by Mr. F. N. Meyer.)

fine furniture. This tree might possibly be profitably cultivated in the semiarid regions of the United States where the winters are not too severe, while the summers may be quite hot. They are easily propagated from suckers that spring up from roots that are close to the surface of the ground, and the tree thrives best when planted close to irrigation canals and on sheltered places. They prefer a porous soil. Chinese name *Ch'iu shu*, meaning 'autumn tree.'"

Young rooted trees.

38255. POPULUS TOMENTOSA Carr. Salicaceæ. **Poplar.**

"(No. 1152. Village of Wangyuko, near Anyihsien, Shansi, China. February 15, 1914.) A quick-growing form of white poplar, much planted by the Chinese for its timber. Forms a tall, straight trunk when kept trimmed up high. Of value as a timber tree on the farm and possibly a good wood for match sticks and for light fruit boxes. May thrive especially well in the southwestern United States. Chinese name *Ta pai yang shu*, meaning 'big white poplar.'"

Rooted trees.

38256. GLEDITSIA sp. Cæsalpiniaceæ.

"(No. 1155. Village of Changtienyuan, Shansi, China. February 16, 1914.) A soap-pod tree, apparently of scrubby growth, occurring on dry, rocky mountain slopes. May possibly possess value as a hedge shrub, especially in semiarid sections."

Roots.

38257. SACCHARUM NARENGA (Nees) Wallich (?). Poaceæ. **Sugar cane.**

"(No. 1164. Chengchow, Honan, China. February 25, 1914.) A very hardy variety of Chinese sugar cane cultivated here and there along the Yellow River. The canes reach a height of 4 to 6 feet, have a diameter of about 1 inch, and are of a beautiful purplish violet color. Sugar percentage low. Of value possibly for the milder parts of the United States as a source of supply for sirups, molasses, and sweets for the children. The canes should be stored during the winter in frost-proof cellars or dugouts with dry soil sprinkled over and between them. In China young and old are fond of pieces of raw sugar cane, which in the milder sections form one of the most common articles of winter sweetmeats. Chinese name *Kan chê*."

Cuttings.

38258 to 38271.

From the village of Wulipu, Honan, China. Collected February 27, 1914. Scions of the following:

38258 to 38261. ZIZIPHUS JUJUBA Miller. Rhamnaceæ. **Jujube.**
(*Ziziphus sativa* Gaertn.)

38258. "(No. 1165.) A variety of jujube, producing fruits of medium large size, of cylindrical shape, slightly tapering down toward base; color light mahogany brown; meat of firm texture and very sweet; can be eaten fresh, as well as smoked and dry baked in the oven. Chinese name *Hui tsao*, meaning 'ashy jujube,' referring to its looks before being quite ripe."

38359. "(No. 1166.) A variety of jujube, said to be of medium size, of round form; meat of crackling nature. Eaten fresh only. Chinese name *Su tsao*, meaning 'brittle jujube.'"

38230 to 38285—Continued. (Quoted notes by Mr. F. N. Meyer.)

38260. "(No. 1167.) A variety of jujube, said to be of medium size, of elongated shape, tapering toward the base. Ripens very late in the summer. Good only when fresh. Chinese name *Chui yüeh ch'ing tsao*, meaning 'ninth-moon green jujube' (the Chinese ninth moon being October)."

38261. "(No. 1168.) A variety of jujube, said to be medium large, of barrel shape, and pointed on both sides. Good only when fresh. Chinese name *Ma ya t'ou tsao*, meaning 'horse's-teeth jujube.'"

38262 to 38271. PYRUS CHINENSIS Lindley. Malaceæ. Pear.

38262. "(No. 1169.) A variety of Chinese pear, growing to a very large size, of round-oblong shape; color dark yellow; meat of somewhat coarse texture, but juicy and sweet; a good keeper and shipper. Chinese name *Ê li*, meaning 'swan pear.'"

Of value like No. 1136 [S. P. I. No. 38240] for hybridization purposes.

38263. "(No. 1170.) A variety of Chinese pear, said to reach very large size, of round-oblong shape; color dark yellow; does not keep long. Chinese name *Pin li*, meaning 'luscious pear.' Of value possibly in breeding experiments."

38264. "(No. 1171.) A variety of Chinese pear, said to be large, of round shape and of pale-yellow color. Ripening in summer and not keeping long. Chinese name *Sha pai li*, meaning 'sand white pear.' Of value possibly in breeding experiments.

38265. "(No. 1172.) A variety of Chinese pear, said to be large, round, and of purplish violet color. Able to withstand long shipping and keeping until late in spring. Chinese name *Tzŭ su li*, meaning 'violet brittle pear.'"

38266. "(No. 1173.) A variety of Chinese pear, said to be of medium size, of real pear shape; sweet; not a keeper. Chinese name *Nai li*, meaning 'milk pear,' or *Yin li*, which means 'silver pear.' Of value possibly in breeding experiments."

38267. "(No. 1174.) A variety of Chinese pear, said to be of medium size, of yellow color; very sweet; ripening in summer and not keeping. Chinese name *Huang li*, meaning 'yellow pear.' Of value possibly for breeding purposes."

38268. "(No. 1175.) A variety of Chinese pear, said to be large, of green color, of sweet taste, ripening in early August; does not possess keeping qualities. Chinese name *Ch'ing p'i t'ien li*, meaning 'green-skin sweet pear.' Of value possibly for breeding purposes."

38269. "(No. 1176.) A variety of Chinese pear, said to be medium large; of round shape; sweet. Ripening in summer and not a keeper. Chinese name *Shui pai li*, meaning 'water white pear.' Of value possibly for breeding purposes."

38270. "(No. 1177.) A variety of Chinese pear, said to be large, of barrel shape; color pale yellow; sweet. Does not possess keeping qualities. Chinese name *Kao ting pai li*, meaning 'tall top white pear.' Of value possibly for breeding purposes."

38230 to 38285—Continued. (Quoted notes by Mr. F. N. Meyer.)

38271. "(No. 1178.) A variety of Chinese pear, said to be of medium size; round oblong in shape, of russet-brown color; flesh soft and mealy, does not keep long. Chinese name *T'ien kua li*, meaning 'sweet melon pear.' Of value possibly in breeding."

38272 to 38274. AMYGDALUS PERSICA L. Amygdalaceæ. Peach. (*Prunus persica* Stokes.)

From near Taianfu, Shantung, China. Scions or cuttings collected March 20, 1914.

38272. "(No. 1197.) A Chinese variety of peach, said to be very large, weighing up to 1 pound apiece. Of greenish white color, of pointed shape; meat very juicy; sweet and fragrant. Possessing good keeping qualities, being kept until December. Chinese name *Fo shou t'ao*, meaning 'Buddha's hand peach.'"

38273. "(No. 1198.) A Chinese variety of peach, said to be medium large, of white color; meat firm and sweet. A late ripener and possessing good keeping qualities. Chinese name *Ch'iu pai t'ao*, meaning 'autumn white peach.'"

38274. "(No. 1199.) A flowering variety of peach, said to be very ornamental when bearing its large rosy red flowers. The fruits are small, of dark rosy red color and of a peculiar shape, having 3 points; taste sweet and reminding one of pineapple. Chinese name *Pi t'ao*, meaning 'fragrant peach.'"

38275 and 38276. AMYGDALUS PERSICA PLATYCARPA (Decne.) Ricker. Amygdalaceæ.

38275. "(No. 1200.) A Chinese variety of peach, said to be of large size, of flat shape; meat juicy and sweet. Color greenish outside, while red inside, especially around the stone. Chinese name *Ta pien t'ao*, meaning 'large flat peach.'"

38276. "(No. 1201.) A Chinese variety of peach, said to be small, of flat shape, meat juicy and sweet, color red. Chinese name *Hsiao pien t'ao*, meaning 'small flat peach.'"

38277 and 38278. PYRUS CHINENSIS Lindley. Malaceæ. Pear.

From near Taianfu, Shantung, China. Scions collected March 21, 1914.

38277. "(No. 1202.) A variety of pear, said to be medium large, of round-oblong shape, of yellow color; juicy and sweet. Possesses good keeping qualities. Chinese name *Chin sui tzŭ li*, meaning 'golden earring pear.'"

38278. "(No. 1203.) A variety of pear, said to be medium large, of round-oblong shape, yellow color, good flavor, breaking easily when falling. Chinese name *Su li*, meaning 'brittle pear.'"

38279 and 38280. MALUS sp. Malaceæ. Apple.

From the village of Fanchiachwang, near Taianfu, Shantung, China. Scions collected March 22, 1914.

38279. "(No. 1204.) A variety of apple, said to be large, of red color; flesh firm and of sweet flavor. Chinese name *Ta p'in kuo*, meaning 'large apple.' Apparently very drought resistant and possibly of value for the drier parts of the United States."

38230 to 38285—Continued. (Quoted notes by Mr. F. N. Meyer.)

38280. "(No. 1205.) A variety of crab apple, said to be large, of light-green color and of subacid taste. Chinese name *Ta sha kuo*, meaning 'large crab apple.' Of value for the drier parts of the United States."

38281 and 38283. PRUNUS spp. Amygdalaceæ.

From the village of Tachingko, near Taianfu, Shantung, China. Collected March 21, 1914.

38281. PRUNUS ARMENIACA L. **Apricot.**

"(No. 1206.) A variety of apricot, said to be very large; color half red and half yellow; sweet and juicy. Chinese name *Ta shui hsing*, meaning 'large water apricot.'"

38282. PRUNUS sp. **Apricot plum.**

"(No. 1207.) Scions of an apricot plum, said to produce medium large fruits of red color. Chinese name *Hsing mei*, meaning 'apricot plum.'"

38283 and 38284. CRATAEGUS PINNATIFIDA Bunge. Malaceæ. **Hawthorn.**

From the village of Tachingko, near Taianfu, Shantung, China. Scions collected March 21, 1914.

38283. "(No. 1208.) A variety of Chinese hawthorn, fruit said to be large, of red color outside, while the meat inside is white, of agreeable subacid taste, not keeping as long as other varieties. Chinese name *Mien shan cha*, meaning 'soft mountain haw.'"

38284. "(No. 1210.) A variety of Chinese hawthorn, fruit said to be large and of red color both inside and out. Chinese name *Hung li shan cha*, meaning 'red inside mountain haw.' This may possibly be the same variety as No. 1209 [S. P. I. No. 38176]. The Chinese haw fruit seems to thrive best on well-drained semigravelly or sandy loam, and the best quality of fruit is produced on trees that grow on mountain terraces. It is not unlikely to become a fruit of considerable importance in America, whenever it shall become known. The Chinese graft and bud this haw on wild and seedling stock of *Crataegus pinnatifida*, but experiments should be made, to determine whether other species of Crataegus will be suitable also for stocks."

38285. ALBIZZIA sp. Mimosaceæ.

From the mountains near Taianfu, Shantung, China. Root cuttings collected March 22, 1914.

"(No. 1211.) A silk-flowered tree, occurring on sterile, rocky mountain slopes; grows into a medium-sized tree. Apparently a good soil binder and of value possibly for the drier sections of the United States as a soil retainer on mountain slopes and as an ornamental park tree. The wood is tough and is used in the construction of carts. Local name *Fu jung hua*, meaning 'old-man's-face flower.'"

38286. GOSSYPIUM sp. Malvaceæ. **Cotton.**

From Brazil. Purchased through Cowdrey & Co., New York City. Received April 3, 1914.

38287 to 38290.

From Darjiling, India. Presented by Mr. G. H. Cave, curator, Lloyd Botanic Garden, through Mr. Wilson Popenoe of the Bureau of Plant Industry. Seeds of Sikkim plants received May 14, 1914.

38287. BETULA UTILIS D. Don. Betulaceæ. **Birch.**

Distribution.—A large tree found at an altitude of 7,000 to 14,000 feet on the temperate slopes of the Himalayas from Kashmir to Sikkim in northern India, and eastward through China and Japan.

"A tree 60 feet high, with a creamy white trunk and branches; bark peeling off in papery flakes; young shoots densely covered with gray down, becoming reddish brown. Leaves ovate, rounded at the base, pointed, 2 to 3½ inches long, about two-thirds as wide, rather coarsely and irregularly toothed; upper surface dark green, with scattered down; lower surface pale, downy on the midrib and veins, the latter in 9 to 12 pairs; leafstalk three-fourths of an inch long, downy; fruiting catkins 1½ inches long, one-third of an inch in diameter, cylindrical; scales downy on the margins, the middle one considerably the longer, and rounded at the end. Native of the Himalayas; introduced by Sir Joseph Hooker in 1849; perhaps before, certainly several times since, from which, judging by its rarity, it would seem that it is not very hardy. A tree over 30 feet high, planted by the late Mr. Chambers at Grayswood in 1882, is the best I know. Young plants have been raised at Kew from its seed, but have not yet had to withstand hard frost. In a letter Mr. Chambers remarked that the bark of his tree 'even to the branches is creamy white, the young twigs of an orange chocolate, very pretty in winter.' Some trees also exist in Trinity College Botanic Gardens, Dublin." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 263.*)

38288 and 38289. MICHELIA spp. Magnoliaceæ.

38288. MICHELIA CATHCARTII Hook. f. and Thoms.

Distribution.—A tall tree with white flowers, found on the temperate slopes of the Himalayas at an altitude of 5,000 to 6,000 feet in Sikkim, northern India.

38289. MICHELIA LANUGINOSA Wallich.

Distribution.—A large bush or tree, with large white flowers, often 4 inches in diameter, found on the temperate slopes of the Himalayas at an altitude of 5,000 to 7,000 feet, from Nepal to Bhutan in northern India.

38290. ALNUS NEPALENSIS D. Don. Betulaceæ. **Alder.**

38291 and 38292.

From Pago Pago, American Samoa. Presented by Commander C. D. Stearns, Governor of American Samoa. Received May 25, 1914. Quoted notes by Commander Stearns.

38291. PIPER METHYSTICUM Forster. Piperaceæ. **Ava (kava).**

"These cuttings are of the best variety grown in the island, and in planting them care should be taken to place the stalk at an angle of about 30° from the perpendicular, as it grows far more quickly in this position. Most of the ava raised in American Samoa is used as a beverage. The product of the ava plant is ready for use after about 4 to 6 years' growth."

38291 and 38292—Contd. (Quoted notes by Commander Stearns.)

38292. CARICA PAPAYA L. Papayaceæ. **Papaya.**

"The mummy-apple tree is very prolific in Samoa. Any land that is cleared, no matter where its location, unless immediately put in cultivation, will be covered in a few months with a thick growth of mummy apples. It has been suggested that the mummy-apple seeds were carried by birds, but they grow so prolifically that this seems almost impossible. I have known tracts of land cleared in Samoa and inside a year to be so thick with mummy-apple trees that a man could not walk over the land without cutting his way through, the mummy-apples being so closely spaced and coming up without apparent cause. Mummy-apples are used here as a fruit for breakfast. The seeds are eaten by many as an aid to digestion, as they contain a digestive somewhat similar to pepsin; the fruits are also baked like squash. The flesh is used to flavor ice cream, as a diet for the sick, in fruit salad, and in a number of other dishes, so it is a rather valuable fruit to us."

38293 and 38294.

From Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Division of Horticulture, Lamao Experiment Station. Received May 25, 1914.

38293. CITRUS HYSTRIX DC. Rutaceæ.

"*Cabuyao.* A thorny tree from 6 to 12 meters in height, with a rather dense rounded head, frequently with drooping branches; young growth more or less purplish, smooth; leaves 16 to 24 centimeters long, ovate, acute, smooth, shining, lighter below than above, crenate; petioles 8.5 to 12 centimeters long, broadly winged, the area of the wings frequently exceeding the leaf area; fruit variable, from oblate to pyriform turbinate or oblong, smooth to more or less corrugate, greenish lemon-yellow; rind medium thick; flesh greenish, juicy, sharply acid, aromatic, contained in 12 to 15 locules; juice sacs short and blunt; seeds usually many, flat, reticulate. Malaysia, including the Philippines to India. Like all other Philippine citrus fruits, the *cabuyao* goes under a multiplicity of names, varying with the many tribal languages of the Archipelago and the different forms of the fruit; some of these names are *suha, balincolong, biasong, tibulit, colobot,* etc. Excepting the citron, the *cabuyao* is perhaps less esteemed than any of the better known citrus fruits in the Philippines and can scarcely be said to be cultivated. Some kinds are eaten with fish by the Filipinos and make a fairly good ade. Most forms are also used in cleaning clothes and as a hair wash. The *cabuyao* has scarcely been introduced beyond its native habitat and is seldom seen even in botanical collections. For attractive shape lines certain forms of the *cabuyao* are surpassed by no other citrus fruit. Some of these forms unquestionably will be recognized as subspecies on closer study, or possibly as separate species." (*Wester, Bulletin No. 27, Citriculture in the Philippines.*)

For a further account of the *cabuyao* and related forms see Wester's Citrus Fruits in the Philippines, Philippine Agricultural Review, First Quarter, 1915.

38294. LAGERSTROEMIA SPECIOSA (Muenchh.) Pers. Lythraceæ.
(*Lagerstroemia flos-reginae* Retz.) **Crape myrtle.**

"*Banaba.* One of our most showy forest trees when it is in bloom. The wood is valuable also, very hard, and almost indestructible. It ought to be introduced into Porto Rico and Panama." (*Wester.*)

38295 and 38296. VIGNA SINENSIS (Torner) Savi. Fabaceæ. **Cowpea.**

From Pungo Andongo, Angola. Presented by Rev. J. C. Wengatz, Methodist Episcopal Mission. Received May 21, 1914. Quoted notes by Mr. Wengatz.

38295. "Black Makunde or '*Makunde ia bafeta.*'"

38296. "Red Makunde or '*Makunde ia kusuku.*'"

38297 and 38298.

From Peradeniya, Ceylon. Presented by Mr. H. F. Macmillan, superintendent, Royal Botanic Gardens. Received May 22, 1914.

38297. ATALANTIA CEYLANICA (Arn.) Oliver. Rutaceæ.

38298. PARAMIGNIA MONOPHYLLA Wight. Rutaceæ.

Distribution.—A stout, climbing evergreen shrub, found in India from the Sikkim Himalayas at an altitude of 2,000 to 5,000 feet, southward mostly in the low mountains, to Ceylon.

38299. BELOU MARMELOS (L.) Lyons. Rutaceæ. **Bael.**

(*Aegle marmelos* Correa.)

From Calcutta, India. Presented by the Royal Botanic Garden, Sibpur. Received May 21, 1914.

"A small, spiny tree, originally a native of India, now commonly grown in the low country of Ceylon and other tropical countries for its fruit. The latter is globular, and varies in size from that of a cricket ball to a large melon; it has a very hard green shell, inclosing a mass of doughy aromatic pulp, intermingled with which is a limpid glutinous substance, which some people relish for its flavor, but more particularly for its medicinal value. The fruit is a well-known specific for dysentery, and is much used in native medicine. The principal season for it is during the months of February to April. The tree is propagated by seed, and thrives in ordinary soil." (*Macmillan, Handbook of Tropical Gardening and Planting.*)

38300 and 38301. SOLANUM TUBEROSUM L. Solanaceæ. **Potato.**

From Alford, Lincolnshire, England. Procured from Mr. S. Brewer through Mr. Charles M. Hathaway, American consul, Hull, England. Received May 19, 1914. Quoted notes by Mr. Brewer.

38300. "*Vitality.* Blight-proof potato. First growth is weak; they will then grow strong and throw a large top. Allow plenty of room. Grown on black fen land."

38301. "*Vitality.* Blight-proof potato. Allow good room; the first growth weak; then they thicken and throw large haulms. Grown on fine soil."

38302 to 38326. HORDEUM spp. Poaceæ. **Barley.**

From St. Petersburg, Russia. Presented by Mr. Robert Regel, Bureau of Applied Botany. Received May 6, 1914.

Reintroduced for the work of Mr. A. G. Johnson, of the University of Wisconsin, on the various species of Helminthosporium and their distribution throughout the barley districts of the world.

38302. HORDEUM sp.

38303 and 38304. HORDEUM DISTICHON NUTANS Schubl.

38302 to 38326—Continued.

38305 and 38306. HORDEUM VULGARE L.

38307. HORDEUM VULGARE L. mixed with *H. distichon nutans* Schubl.

38308 to 38310. HORDEUM VULGARE L.

38311. HORDEUM VULGARE HIMALAYENSE Rittig.

38312. HORDEUM VULGARE L.

38313. HORDEUM VULGARE LEIORRHYNCHUM Koernicke.

Received as *H. vulgare leiorrhynchum nekludowi* R. Regel, described in full in Regel's Glattgrannige Gersten, p. 69–71, 1909.

38314. HORDEUM VULGARE NIGRUM (Willd.) Beaven.

Received as *H. vulgare nigrum daghestanicum* R. Regel, described in Regel, Flaxberger, and Malzeff, The Most Important Forms of Wheat Barleys, etc. (Russian), p. 31, 1910.

38315. HORDEUM VULGARE PALLIDUM Seringe.

Received as *H. vulgare pallidum hibernaculum* R. Regel, op. cit., p. 31.

38316. HORDEUM VULGARE L.

Received as *H. distichum persicum eriwanense* R. Regel, Glattgrannige Gersten, p. 75–76, 1909.

38317. HORDEUM DISTICHON ERECTUM Schubl.

38318 and 38319. HORDEUM VULGARE L.

38320. HORDEUM DISTICHON ERECTUM Schubl.

38321. HORDEUM VULGARE L.

38322. HORDEUM VULGARE L.

38323. HORDEUM DISTICHON NUTANS Schubl.

38324. HORDEUM VULGARE L.

38325. HORDEUM VULGARE NIGRUM (Willd.) Beaven.

38326. HORDEUM VULGARE L.

38327. ORYZA SATIVA L. Poaceæ. **Rice.**

From Dakhleh Oasis, western Egypt. Purchased from Sheik Abu Bakr, through contract made by Prof. S. C. Mason, of the Bureau of Plant Industry, on his visit to the oasis in October, 1912. Received May 20, 1914.

"This rice is a variety grown in the Oases of Khargeh and Dakhleh and there regarded as quite distinct from the so-called valley rice which is used in reclaiming the salty lands in the delta of Lower Egypt.

"Mr. Wright, manager of the Corporation of Western Egypt, at Khargeh, and Sheik Abu Bakr, the chief man of Dakhleh Oasis, both especially recommended this rice as being a valuable crop for reclaiming salty lands. They stated that it can be grown successfully on land quite too strong for barley.

"My idea in bringing this in was not that it would be of sufficient importance to use as a main crop on high-priced irrigated lands, but that it should be given a test as a useful crop in reclaiming lands at present too salty for the growing of alfalfa and barley. Considerable areas of land of this character in the Coachella Valley are accessible to a good flow of artesian water.

"In Dakhleh the land is bordered with quite high ridges and the water kept almost continuously on the rice, it being essential, of course, that there be some wash or lower tract into which the surplus water can be diverted. My idea is that it is this excess of water that really does the chief

38327—Continued.

work of improving the alkaline ground, rather than the rice crop itself; but if a crop of rice can be raised, contributing toward the expense of reclaiming such land and bringing it into condition for usefulness with other crops, the rice certainly justifies itself." (*Mason.*)

38328. RAPHANUS SATIVUS L. Brassicaceæ. **Radish.**

From Taianfu, Shantung, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Roots received May 27, 1914.

"(No. 1216. March 28, 1914.) A peculiar variety of Chinese winter radish of very mild and sweet taste. Eaten by the people like apples. Promoting an appetite and aiding digestion. Chinese name *Hsiang ch'ing lo po*, meaning 'sweet green root.'" (*Meyer.*)

38329 to 38331.

From Lavras, Minas Geraes, Brazil. Presented by Mr. B. H. Hunnicutt, director, Escola Agricola de Lavras, through Miss Charlotte Kemper. Received May 19, 1914. Quoted notes by Mr. Hunnicutt.

38329. CALOPOGONIUM ORTHOCARPUM Urban. Fabaceæ.

"Leguminous vine, well liked by stock. Popularly known as *Corda de viola*, 'violin chord.' From the farm, Lavras Agricultural School, April 15, 1914.

38330. CHORISIA INSIGNIS H. B. K. Bombacaceæ.

"Seeds from the *Paina* tree that is in the praça in front of our school. The silky fiber in the fruit with the seed is highly appreciated for pillows, fine mattresses, etc. It sells here for from 30 to 40 milreis ($10 to $13) for an arroba, or 15 kilos (33 pounds). The tree is also a very handsome shade tree."

38331. MEIBOMIA sp. Fabaceæ.

"A weed very similar to Florida beggarweed, popularly known as *carapicho;* leguminous plant. From Lavras Agricultural School, Lavras, Minas Geraes, April 15, 1914."

38332. SACCHARUM NARENGA (Nees) Wallich (?). Poaceæ. **Sugar cane.**

From Kaifeng, Honan, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Cuttings received May 27, 1914.

"(No. 1215. March 4, 1914.) Several varieties (mixed) of hardy sugar cane, grown in the vicinity of Kaifeng. They contain a much greater percentage of sugar than the variety obtained under No. 1164 [S. P. I. No. 38257]. To be tested like that number, for sirups, molasses, and sweets for children, and might possibly be a good fodder for milch cows." (*Meyer.*)

38333. PHOEBE NANMU (Oliver) Gamble. Lauraceæ. **Nanmu.**
(*Machilus nanmu* Hemsl.)

From Yachow, Szechwan. Presented by Dr. Edgar T. Shields, West China Baptist Mission. Received May 27, 1914.

For previous introduction, see S. P. I. No. 37944.

38334. PELARGONIUM sp. Geraniaceæ. Rose geranium.

From Valencia, Spain. Presented by Mr. Claude I. Dawson, American consul, who procured them from J. Robillard & Co. Cuttings received May 29, 1914.

"*Malvarrosa*, or rose geranium. This is the variety which yields the geranium oil of commerce." (*Dawson.*)

38335. CITRUS sp. Rutaceæ. Orange.

From Yokohama, Japan. Presented by Mr. E. H. Wilson. Received May 6, 1914.

"*Natsu Mikan.* During my recent trip to southern Kyushu I made a collection of the various citrus fruits cultivated here. Among these fruits is an orange with which I am unfamiliar. Its Japanese name is *Natsu Mikan*, and it is said to keep longer than any other variety and to be very sweet at midsummer. It is a light-skinned variety with rather pale flesh, and the skin separates from the flesh as in the pummelo. The tree bears in a small state and the fruit is decidedly handsome in appearance. In February and March it is still on the tree and the flavor is sour and very decidedly bitter. I shall test the fruit again at midsummer to find if it becomes distinctly sweet. Very likely this orange is well known to you, but it occurs to me that sweet oranges at midsummer would find a ready market. If of any interest to you there would be no difficulty in securing a supply of seeds. I think growing plants could also be obtained. Apparently it is as hardy as the navel orange." (*Wilson.*)

"Regarding the so-called 'sweet summer orange,' fruits of which I sent in the spring, I have since eaten this fruit in the summer and unhesitatingly say that the term 'sweet' is a misnomer; sour is the correct word to use, and I do not think there is the remotest possibility of this fruit appealing to the American palate." (*Wilson, in letter dated September 7, 1914.*)

38336. OLEA EUROPAEA L. Oleaceæ. Olive.

From Bermuda. Collected by Mr. Peter Bisset, of the Bureau of Plant Industry. Received June 2, 1914.

"Cuttings from an olive that fruits sparingly in Bermuda. For trial in Florida, where soil and climatic conditions are similar, and where the olive does not fruit." (*Bisset.*)

38337 to 38340.

From Tsaochowfu, Shantung, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received at the Plant Introduction Field Station, Chico, Cal., May 27, 1914. Plants of the following; quoted notes by Mr. Meyer.

38337. PRUNUS GLANDULOSA Thunberg. Amygdalaceæ.

"(No. 1192. March 11, 1914.) A shrub of small dimensions, said to be quite ornamental in the spring when in flower. Apparently rare. Chinese name *Yü hua mei.*

"*A.* Has pure white flowers; Chinese name *Pai yü hua mei.*

"*B.* Has rosy flowers; Chinese name *Hung yü hua mei.*

"*C.* Has white flowers dotted with red spots; Chinese name *Hua yü hua mei.*"

38337 to 38340—Continued. (Quoted notes by Mr. F. N. Meyer.)

38338. BUXUS SEMPERVIRENS L. Buxaceæ. **Box.**

"(No. 1194. March 11, 1914.) A broad-leaved variety of box of dense, sturdy growth, apparently fairly hardy. The trees, when getting older, assume umbrellalike shapes and are quite ornamental when seen in old temple yards. Chinese name *Huang ya*, meaning 'yellow bud.'"

Rooted plant.

38339. PAEONIA ALBIFLORA Pallas. Ranunculaceæ. **Peony.**

"(No. 1195. March 11, 1914.) A collection of five rare varieties of herbaceous peonies, among which yellow, green, and black ones are said to occur.

"*A. Hei shao yao*, meaning 'black peony.'

"*B. Chin chan shao yao*, meaning 'golden spreading peony.'

"*C. Lu huang shao yao*, meaning 'reed-yellow peony.'

"*D. Ping ch'ing shao yao*, meaning 'ice-green peony.'

"*E. Kao kan hung shao yao*, meaning 'tall-stem red peony.'

38340. PAEONIA SUFFRUTICOSA Andrews. Ranunculaceæ. **Peony.**
(*Paeonia moutan* Sims.)

"(No. 1196. March 11, 1914.) A collection of 12 rare varieties of tree peonies, among which yellow, blue, green, and black flowering ones are said to occur.

"*A. Lan t'ien mu tan*, meaning 'beautiful sky-blue peony.' Flowers said to be of a deep-blue color.

"*B. Yü kuo t'ien ch'ing mu tan*, meaning 'cleared-up-weather peony.' Flowers said to be of an opaque-blue color.

"*C. Yü i huang mu tan*, meaning 'imperial dress yellow peony.' Flowers said to be of dark-yellow color.

"*D. Chin lun mu tan*, meaning 'golden wheel peony.' Flowers said to be of a bright yellow color.

"*E. Yao huang mu tan*, meaning 'handsome yellow peony.' Flowers said to be of ocher-yellow color.

"*F. Mo chin mu tan*, meaning 'black and gold peony.' Flowers said to be of dark leather-brown color.

"*G. Lü yü mu tan*, meaning 'green-jade peony.' Flowers said to be of a transparent-green color.

"*H. Tou lü mu tan*, meaning 'mung-bean green peony.' Flowers said to be of an opaque-green color.

"*I. Hao pai mu tan*, meaning 'crane-white peony.' Flowers said to be very large and of a brilliant white color.

"*J. Mei jên mien mu tan*, meaning 'handsome woman's-face peony.' Flowers said to be large and of a particularly fine shade of rose color.

"*K. Chuang yüan hung mu tan*, meaning 'superior red peony.' Flowers said to be of a beautiful brilliant red color.

"*L. Tung wu êrh chiao mu tan*, meaning 'Tung wu, doubly beautiful peony.' Flowers said to be large, of variegated color, being white with red spots here and there.

"The soil best suited to these tree peonies is of a loose, porous, sandy loam nature, with perfect drainage and of great depth. In the district to the northwest of Tsaochowfu one finds such soil and climatic conditions as seem to suit this peony to perfection, and the plants are grown there on fields as regular crops and are sent all over eastern China, going as far south as Canton and as far north as Mukden, to be used

38337 to 38340—Continued. (Quoted notes by Mr. F. N. Meyer.)

mainly for forcing purposes. More than 300 varieties are said to be in cultivation here. The best time for transplanting is considered to be September, while propagation is effected through division. The plants require 3½ feet distance in all directions to develop to perfection, while older plants even need to be 4 to 6 feet apart. At the approach of winter these peonies are covered over with some soil, which is taken away again in early March. This saves the flower buds from being winterkilled and reduces danger from damage by men or beasts, as the wood of the tree peony is quite brittle. Possibly an industry could be established in some suitable section of the semiarid southwestern United States, where the tree peony could be grown in large quantities, to supply florists with one of the most decorative flowers for winter forcing purposes."

38341. Copaiva copallifera (Benn.) Kuntze. Cæsalpiniaceæ.

(*Copaifera guibourtiana* Benth.)

From Kindia, French Guinea, Africa. Presented by the director of the agricultural station. Received May 25, 1914.

Distribution.—A tree with compound leaves and small flowers in panicled spikes, found in the Sierra Leone region of Upper Guinea. It is called *Kobo* tree by the natives. The wood is odoriferous and furnishes a valuable copal.

38342. Psidium sp. Myrtaceæ. Guava.

From Bahia, Brazil. Presented by Dr. V. A. Argollo Ferrão. Received May 25, 1914.

"*Araça cagão.* A native guava, pear shaped and of good size. The flesh is white, and the seeds, though large, are few in number. The tree grows to a height of 20 to 25 feet. The fruit is used principally for jams." (*Wilson Popenoe.*)

38343 to 38353. Triticum aestivum L. Poaceæ. Wheat.

(*Triticum vulgare* Vill.)

From Perth, West Australia. Presented by Mr. E. A. Cook, Department of Agriculture. Received May 25, 1914.

"These wheats are well-known Australian varieties, almost all of them having been produced by the wheat breeders of the Department of Agriculture of New South Wales, Australia, from which State they were evidently sent to West Australia. These are all soft, or comparatively soft, wheats of the general type grown so abundantly in Australia. They are comparable to the soft, white wheats of the Great Basin and Pacific coast regions of this country. Their principal value to us is for testing in the Southwest under conditions climatically similar to those of Australia. They may also have value as the basis for crossbreeding. (*C. R. Ball.*)

38343. *Alpha.* Medium early.
38344. *Bayah.* Late.
38345. *Bunyip.* Very early.
38346. *Comeback.* Medium early.
38347. *Federation.* Late.
38348. *Firbank.* Very early.
38349. *Florence.* Very early.
38350. *Gluyas Early.* Medium early.
38351. *Steinwedel.* Medium early.
38352. *Warren.* Medium early.
38353. *Yandilla King.* Late.

38354 and 38355. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**

(*Sorghum vulgare* Pers.)

From Sapporo, Japan. Presented by Mr. T. Minami, Professor of Agronomy, Tohoku Imperial University. Received May 28, 1914. Quoted notes by Mr. Minami.

38354. "No. 1. Early ripening. Cultivated in Honshu, the mainland of Japan."

38355. "No 2. Middle ripening. Cultivated in Honshu, the mainland of Japan."

38356 to 38360. SOLANUM TUBEROSUM L. Solanaceæ. **Potato.**

From Warsaw, Russia. Presented by Mr. Józef Gliszczyński, at the request of Mr. Edouard de Kostecki, Central Agricultural Society in Poland. Tubers received June 3, 1914.

Five varieties of the very best starch, table, and feeding potatoes, exclusively of Polish origin.

"All these varieties take their origin from the well-known potato breeder Henry Dotowski in Nowa Wies, Austrian Poland, and for many years have undergone an excellent and very careful selection at my seed-producing olgrl." (*Gliszczyński.*)

38356. "*1. Maguola.* First-rate table variety."

38357. "*2. Busola.* Excellent starch potato."

38358. "*3. Olgierd.* Excellent starch potato."

38359. "*4. Faryd.* Excellent starch potato."

38360. "*5. Bohun.* One of the best feeding potatoes."

38361 to 38366. ORYZA SATIVA L. Poaceæ. **Rice.**

From Paramaribo, Surinam. Presented by the director, Department of Agriculture. Received June 1, 1914.

38361. *Boeloeh itum* (Boeloe item).

38362. *Boeloeh poetih* (Boeloeh pitih).

38363. *Ketan item.*

38364. *Moetmoerio* (Moetmoeria).

38365. *Patraka* (*Skrivimas Koti;* Patarka).

38366. *Witte Wanica* (Wittie Wanica).

38367 to 38371. ORYZA SATIVA L. Poaceæ. **Rice.**

From Bangalore, India. Presented by Mr. G. H. Krumbiegel, economic botanist, Mysore Government Botanic Gardens. Received June 1, 1914.

"The growing period is from 120 to 130 days." (*Krumbiegel.*)

38367. *1. Banku paddy.*

38368. *2. Garudan Samba.*

38369. *3. Vallai Kattai.*

38370. *4. Kareyur* or *Pallaiya Samba.*

38371. *5. Muthu Samba.*

38372 to 38398.

From Manila, Philippine Islands. Presented by Mr. H. T. Edwards, Director of Agriculture, through Mr. Harry H. Boyle, assistant horticulturist. Received May 22, 1914. Plants of the following, quoted notes by Mr. Boyle, unless otherwise indicated.

38372 to 38398—Continued. (Quoted notes by Mr. H. H. Boyle.)

38372. Canarium ovatum Engler. Balsameaceæ. **Pili nut.**

"Trees are found growing in the various islands of southern Luzon, in the Province of Albay. The leaves are compound; the fruit is a triangular drupe, containing one seed. The nuts are eaten quite extensively in the islands and throughout the eastern part of the world. From them an oil is extracted, which is used for the table and also for burning in lamps. This nut is the best I have ever eaten. During the past two years quite a number of shipments of this nut have been made to San Francisco and find a ready market. A gum, that resembles in properties the copaiba balsam, is extracted from the bark."

38373. Passiflora laurifolia L. Passifloraceæ. **Passion fruit.**

"An edible variety obtained from Mr. P. Morange, director of the Botanic Gardens, Saigon, Cochin China. The fruit is of a bright yellow color, pear shaped, about the size of the ordinary pear tomato, and very similar to it in appearance. A bitter substance, which is being employed to counteract intermittent fever, is extracted from the leaves."

38374. Euphoria cinerea Radlk. Sapindaceæ.

"Undoubtedly a new species, closely allied to the *longan*, found in the mountains of Cavite Province near the town of Silang, Philippine Islands. The trees are 1½ feet in caliper, and from 50 to 60 feet in height. The fruit has a remarkably sweet flavor; the pulp is semitransparent, and is greatly prized by all who eat it."

38375. Eugenia curranii C. B. Robinson. Myrtaceæ.

"Native of the island of Catanduanes, Philippine Islands. Fruits the size of a large cherry, glossy, purplish black in color, borne on the stem near the axil of the leaf in very large clusters. As many as a gallon of fruits have been noted attached to a branch 1½ feet in length. Native name *Egot*, *Igot*, or *Igut*."

38376. Carissa ovata R. Brown. Apocynaceæ.

"A species introduced from the Botanic Gardens, Sydney, Australia. Spines and foliage much reduced in comparison with the species *arduina*. This variety has not yet fruited or flowered in the Philippines. Greatly valued in Australia for its fruit, as well as its medicinal properties."

38377. Artocarpus odoratissima Blanco. Moraceæ. **Marang.**

See S. P. I. No. 36256 for previous introduction and description.

38378. Stadmannia oppositifolia Lam. Sapindaceæ.

"No. 4255."

38379 to 38381. Mangifera indica L. Anacardiaceæ. **Mango.**

"Three of the best fruiting varieties grown in the Buitenzorg Botanic Gardens, Java. These were received at the Bureau of Agriculture, Philippine Islands, without varietal names."

38379. P. I. No. 3651.

38380. P. I. No. 3650.

38381. P. I. No. 3649.

38382. Mangifera sp. Anacardiaceæ. **Mango.**

"(No. 3123.) Obtained from the northern part of the island of Palawan by Mr. E. D. Merrill, botanist, Bureau of Science, Philippine Islands. Remarkable for its small seeds and the small amount of fiber. Tree of very large size."

38372 to 38398—Continued. (Quoted notes by Mr. H. H. Boyle.)

38383. DILLENIA PHILIPPINENSIS Rolfe. Dilleniaceæ.

"Native name '*Catmon*.' A very ornamental shade tree indigenous throughout the Philippine Islands. The fruit consists of five distinct united carpels; it is acid and is extensively used by the natives for flavoring fish."

38384. DILLENIA sp. Dilleniaceæ.

"This tree is used throughout the Malay Peninsula as a shade tree. The fruits are used by the natives along with fish. It contains from 5 to 20 cells, the carpels growing together around the fleshy center and surmounted by as many radiating styles, each cell containing numerous seeds surrounded by a gelatinous pulp."

38385. ATALANTIA sp. Rutaceæ.

"Perhaps *Atalantia retusa*. Two plants obtained from Mr. P. Morange, Director of the Botanic Gardens, Saigon, Cochin China. A very interesting type, which perhaps might be of value for plant breeding."

38386. HIBISCUS MUTABILIS L. Malvaceæ.

"A double white-flowering variety. Perhaps the only one of its kind in cultivation. Has the same shaped flower as the *Peachblow* variety. A beautiful ornamental shrub."

38387. MANGIFERA INDICA L. Anacardiaceæ. Mango.

"Var. *mekongensis*. Obtained from the Botanic Gardens, Cochin China. Native name *Xoai thanhca*. One of the best edible varieties grown in the country."

38388. CITRUS sp. Rutaceæ.

"Obtained from Mr. P. Morange, director of the Botanic Gardens, Saigon, Cochin China. A very distinct citrus species which resembles a pomelo both in foliage and in the fruit. Named after the town of Moi in Indo China." Received as *Citrus moi*, for which no place of publication has yet been found.

38389. BELOU MARMELOS (L.) Lyons. Rutaceæ. Bael.
(*Aegle marmelos* Correa.)

"Seedlings of a fruit obtained from a tree grown on the plaza of the largest pagoda in Siam, which is situated in the town of Propatone. As this fruit is of a different type from the ordinary *Aegle marmelos*, it is thought that it might be of some value. The fruit is fully 5 inches in length and 2½ inches in width, more of the melon shape than pyriform."

38390 and 38391. MANGIFERA INDICA L. Anacardiaceæ. Mango.

38390. "*Carabao*. This variety is a native of the Philippines, and is, without doubt, the best mango fruit I have ever eaten. It is indigenous all over the Philippine Islands, principally found growing along the walls of the rice paddies. Rarely cultivated in orchard form."

38391. "*Pico*. To my mind this is the second best mango I have ever eaten. For scarcity of fiber and for excellent flavor it is worthy of this rank. The name *Pico* has reference to the fruit being sharp pointed, resembling a pickax."

38372 to 38398—Continued. (Quoted notes by Mr. H. H. Boyle.)

38392. Garcinia binucao (Blanco) Choisy. Clusiaceæ. **Batuan.**

"Native name '*Batuan*.' Native of Augusan Province. Might possibly prove a good stock for *Garcinia mangostana*."

38393. Anacardium occidentale L. Anacardiaceæ. **Cashew.**

"A pink-fleshed variety, obtained from Mr. P. Morange, Director of the Botanic Gardens, Saigon, Cochin China."

38394. Mangifera verticillata C. B. Robinson. Anacardiaceæ. **Baúno.**

For previous introduction and description, see S. P. I. No. 34431.

38395. Anacolosa luzoniensis Merrill. Olacaceæ. **Galo.**

"A tree 20 to 30 feet in height, resembling in appearance the *Diospyros virginiana*. Produces small fruits the shape of an olive, the kernels of which have the flavor of corn and contain very nourishing properties. Found in the mountains of Cavite near the towns of San Francisco and Silang."

38396. Gustavia gracillima Miers. Lecythidaceæ.

"A very pretty tree, obtained from Mr. P. Morange, Director of the Botanic Gardens, Saigon, Cochin China."

38397. Antigonon guatimalense Meissn. Polygonaceæ.

"Obtained from the Botanic Gardens, Singapore, Straits Settlements. Flowers more numerous and much larger than *A. leptopus*."

"A trailing or climbing plant, with slender, angular, pubescent stems, the leaves about 4 by 3 inches, the upper ones smaller, supported on short, terete downy stalks, and of a broadly ovate-oblong form, deeply cordate at the base with two rounded lobes, the apex shortly acuminate. The upper surface is puberulous, the lower softly downy. The flowers are very numerous and borne in tufts along the sides of long racemes or panicles, which terminate in branched tendrils. Each flower is raised on a slender pedicel about three-fourths of an inch long, subtended by an ovate-acute bract about half the length of the pedicel. The calyx, which is the showy part of the flower, has five membranous segments; the three outer are of a beautiful rosy pink color about 1 inch in length by rather less in breadth, cordate at the base, oblong, rounded toward the apex, which terminates in a very short deltoid point. Within these are two other sepals of about the same length as the outer ones, but much narrower, falcate, lanceolate, apiculate. Within these sepals are eight stamens of unequal length, united into a short tube at the base surrounding the 3-cornered ovary, but above free. The fruit exceeds the stamens in length, and is terminated by the remains of three styles, each surmounted by a capitate stigma. Messrs. Shuttleworth and Carder speak in the most glowing terms of the beauty of this plant, and the specimens they have brought certainly confirm their good opinion. It is much the finest *Antigonon* known to us." (*M. T. Masters, in Gardeners' Chronicle, ser. 2, vol. 7, p. 780, 789, 1877.*)

39398. Canarium ovatum Engler. Balsameaceæ. **Pili nut.**

38399 to 38404.

From Guatemala. Collected by Mr. O. F. Cook, of the Bureau of Plant Industry. Received June 9 and 10, 1914. Quoted notes by Mr. Cook.

38399 to 38404—Continued. (Quoted notes by Mr. O. F. Cook.)

38399. Collinia sp. Phœnicaceæ. **Palm.**

"A small species with narrow pinnæ and slender, short-jointed trunk. A few plants were introduced several years ago and have been found very well suited to household cultivation."

38400 to 38402. Persea americana Miller. Lauraceæ. **Avocado.**
(*Persea gratissima* Gaertn. f.)

"The avocado season is much too far along to do satisfactory work. In most places the season is completely over, but at these higher altitudes a few fruits are still in the market, as yet none of a quality to particularly recommend them. But I see one thing clearly, that it is the late varieties of these countries that we want. The early varieties ripen in August and September, the others in December, etc., and as the colder places are reached the crop goes around into the spring months."

38400. "From Purulha, Department of Bajo Verapaz, Guatemala. Cuttings from a tall, slender tree, 30 feet high, growing in the garden of Señor Ernesto Avouet, at Purulha; altitude, 5,000 feet. A large, round, hard-shelled, small-seeded type, without fruit at this time (May 25), but said to be one of the very best in this vicinity."

38401. "From Coban, Department of Alta Verapaz, Guatemala. *Dieseldorff* No. 2. Scions from a tree bearing large, oval, hard-shelled fruit with reddish flesh. Without fruit at this time (May 22.) Growing in garden of Señor Dieseldorff, at Coban; altitude, 4,300 feet. Fruit said to be of superior quality."

38402. "From Coban, Department of Alta Verapaz, Guatemala. *Dieseldorff* No. 3. Round shaped fruit, flesh yellowish green, large proportion of flesh, rather small seed, very tough, thick shell. Scions from a large spreading tree 50 feet tall, growing in garden of Señor Dieseldorff, at Coban; altitude, 4,300 feet. At this time (May 22) the tree carried a large crop of mature fruit."

For an illustration of Guatemalan avocado fruits, see Plate IX.

38403 and 38404. Chamaedorea sp. Phœnicaceæ.

"Pacaya" salad palm.

"From Coban, Department of Alta Verapaz, Guatemala. Collected at an elevation of 4,300 feet. A large species, with a large fleshy edible inflorescence, used as a cooked vegetable or as a salad.

"Pacaya palms are grown here in great abundance, so that any amount of seed could be obtained. Some of the palms have four, five, and even six pacayas, as the edible male inflorescences are called, so that we did not overestimate the amount of fruit that might be produced in a successful planting. I feel confident that the palms would grow very well in sheltered situations in southern Florida, or I would suggest that a planting be made in the slat house at Miami, with the idea of leaving some of the palms to grow to maturity. They attain a height of 12 to 15 feet, but fruit much younger, possibly in the third or fourth year."

38403. Small seedling plants. **38404.** Collected May 22, 1914.

38405 to 38407.

From Zaria, Northern Nigeria. Presented by Mr. P. H. Lamb, director, Department of Agriculture. Received June 1, 1914.

"These varieties are crops which occupy the land for about five months in Nigeria, and the seed was obtained from Bornu, where it matured last season with a rainfall of 10 to 20 inches. The soil on which they were grown is, generally speaking, a light sandy loam, and the yield per acre here generally varies between 300 and 600 pounds of clean corn per acre." (*Lamb.*)

38405 and 38406. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

38405. *Kaura.* **38406.** *Jan dawa.*

38407. PENNISETUM GLAUCUM (L.) R. Brown. Poaceæ. **Pearl millet.**
(*Pennisetum typhoideum* Rich.)

"*Maiwa.*"

38408 to 38414.

From Novospasskoe, Russia. Presented by Mr. A. Woeikoff, director, Bureau d' Acclimatation. Received May 18, 1914.

38408. AMYGDALUS PEDUNCULATA Pallas. Amygdalaceæ.
(*Prunus pedunculata* Maxim.)

Seeds from M. M. Timogovich, Tchita, Transbaikalia. See S. P. I. No. 37559 for previous introduction.

38409. PICEA OBOVATA Ledeb. Pinaceæ. **Fir.**

Seed from the Provinces of Transbaikalia and Jakutsk. See S. P. I. Nos. 20319 and 36729 for previous introductions and description.

"In its general appearance this species bears a considerable resemblance to the common spruce, having similar leaves and very downy young shoots. It is, however, distinct in the cones, which are smaller (about 3 inches long) and have the scales rounded and entire at the apex (not jagged as in *P. excelsa*). It is widely spread in Siberia and northeast Russia, and in places reaches a stature of 100 feet; valuable in supplying timber and fuel in cold, inclement regions. It has little garden value, being less to be preferred than the common spruce." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 160.*)

38410. PRUNUS PADUS L. Amygdalaceæ.

Var. *sibirica.* Seed from the Provinces of Transbaikalia and Jakutsk.

38411 and 38412. RIBES spp. Grossulariaceæ. **Currant.**

38411. RIBES DIKUSCHA Fisch.

Var. *appendiculatum.* Seed from the Provinces of Transbaikalia and Jakutsk.

38412. RIBES DIACANTHA Pallas.

Seed from the Provinces of Transbaikalia and Jakutsk.

Distribution.—A bush bearing oblong, golden-red currants, found in the Altai and Transbaikal regions of Siberia, in Songaria, and in Mongolia.

"A deciduous shrub, 4 to 6 feet high, armed with spines in pairs one-eighth to one-fifth of an inch long, or sometimes unarmed; young shoots not downy. Leaves obovate or rounded, often 3-lobed, the lobes coarsely toothed, three-fourths of an inch to 2 inches wide,

38408 to 38414—Continued.

the base ordinarily wedge shaped but sometimes rounded, quite smooth; stalk one-fourth to five-eighths of an inch long, more or less furnished with bristles. Flowers unisexual, the sexes on different plants. Males yellowish in erect glandular racemes. Fruit roundish oval, about as big as a red currant, smooth, scarlet red. Native of Siberia, Manchuria, etc.; introduced in 1781. This shrub, which has no particular merit, resembles *R. alpinum* in the plants being 1-sexed, but differs in having prickles and in the markedly wedge-shaped leaves. In having spines and flowers in racemes, it unites the characters of the currants and gooseberries, but its affinities are with the former." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 401.*)

Introduced for breeding purposes.

38413. RHODODENDRON DAURICUM L. Ericaceæ.

Seed from the Provinces of Transbaikalia and Irkutsk.

"This rhododendron is a native of Dahuria, Mandshuria, and Sachalin, and, coming from a cold region, a spell of mild weather in midwinter causes it to begin to open its flowers very early in this country [England]; therefore they often fall a prey to frost before they can expand. Nevertheless, it is a good kind of plant, for in those seasons when it does escape injury it adds a brilliant touch of color to the garden at a very dull season. There are several forms of the plant, some having deciduous leaves, and in other cases the leaves are evergreen or subevergreen." (*The Garden, January 11, 1913, p. 18.*)

"A deciduous or semievergreen shrub up to 6 feet in height; young shoots scaly and downy. Leaves oval, rounded at the apex, tapering or rounded at the base, half an inch to 1½ inches long, one-fourth to five-eighths of an inch wide, dark glossy green and slightly scaly above, paler and scaly beneath. Flowers bright rosy purple, 1 to 1½ inches across, produced during January and February singly from each one of a cluster of scaly buds at the end of the previous summer's growth, where there are usually but one or two flowers open at a time. Corolla flat, saucer shaped; calyx lobes five, short." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 352.*)

38414. LARIX KURILENSIS Mayr. Pinaceæ. Larch.

Seed from the Provinces of Primorskaya and Sakhalin.

See S. P. I. No. 35171 for previous introduction and description.

38415. LOTUS TETRAGONOLOBUS L. Fabaceæ.

From Paris, France. Presented by Vilmorin-Andrieux & Co. Received June 9, 1914.

Distribution.—The countries bordering on the Mediterranean from Spain through Italy and the Balkan peninsula to the Transcaucasian Provinces of southeastern Russia, and in northern Africa.

38416 to 38427.

From Novospasskoe, Russia. Presented by Mr. A. Woeikoff, director, Bureau d'Acclimatation. Received May 16–18, 1914.

38416 to 38418. AMYGDALUS PERSICA L. Amygdalaceæ. Peach.
(*Prunus persica* Stokes.)

38416 to 38427—Continued.

Seed of peaches cultivated by the natives of Turkestan and northern Persia.

38416. ***Rugani Gau.*** **38418.** **Var. *1*.**

38417. ***Pastack Shaftaly.***

38419. CATALPA BUNGEI Meyer. **Bignoniaceæ.**

See S. P. I. Nos. 16914 and 22578 for previous introductions.

Seed from the Caucasus by Mr. G. I. Strunnikoff.

"A tree 20 to 30 feet high, of bushy habit. Leaves 2 to 7½ inches long, 1½ to 4½ inches wide, ovate or somewhat triangular, with a wedge-shaped or straightly cut base, sometimes entire, but often coarsely scalloped, so as to form 1 to 6 large teeth on each side, mostly on the lower half, quite smooth at maturity; stalk one-half to two-thirds as long as the blade. Flowers not yet seen in this country, but described as 'white and purple'; they are produced 3 to 12 together in a flattish corymb. Corolla 1½ inches long and wide. Native of China, and evidently frequent in the neighborhood of Pekin. Although the true species was only introduced in 1905, through Prof. Sargent, plants under the name have long been in cultivation; these, however, are nearly always *C. bignonioides* var. *nana*, but sometimes *C. ovata*. The true *C. bungei* is still very rare. Of its ornamental qualities little can yet be said, but as represented by dried specimens at Kew, its inflorescence is small. Its quite smooth leaves distinguish it from other cultivated species except the new *C. duclouxii* (which is said to have pale-pink flowers with deeper spots)." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 311.*)

38420. DAPHNE CAUCASICA Pallas. **Thymelæaceæ.**

Seed from the Caucasus by Mr. G. I. Strunnikoff.

See S. P. I. No. 30573 for previous introduction.

"A deciduous shrub, up to 4 feet high, with flowering twigs downy; barren young twigs less so or smooth. Leaves produced oftener rounded than tapered at the apex, 1 to 1½ inches long; one-third to half an inch wide; smooth, pale green above; somewhat glaucous beneath. Flowers glistening white, fragrant, produced during May and June in terminal heads of usually 4 to 12 blossoms; the perianth one-third of an inch across, with ovate lobes; tubes one-third of an inch long, cylindrical, silky outside; ovary slightly downy. Native of the Caucasus; many times introduced and lost. It has no great merit, but is pleasing in its fragrance and for its abundant flower clusters borne at the end of crowded, short, leafy shoots springing from the previous year's growth. It thrives exceedingly well at Warley Place, where there are rounded bushes 4 feet high. It differs from *D. alpina* in its smooth leaves." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 465.*)

38421 to 38426. PRUNUS spp. **Amygdalaceæ.**

Seed from the Caucasus by Mr. G. I. Strunnikoff.

38421 to 38424. PRUNUS CERASIFERA DIVARICATA (Ledeb.) **Schneider.**

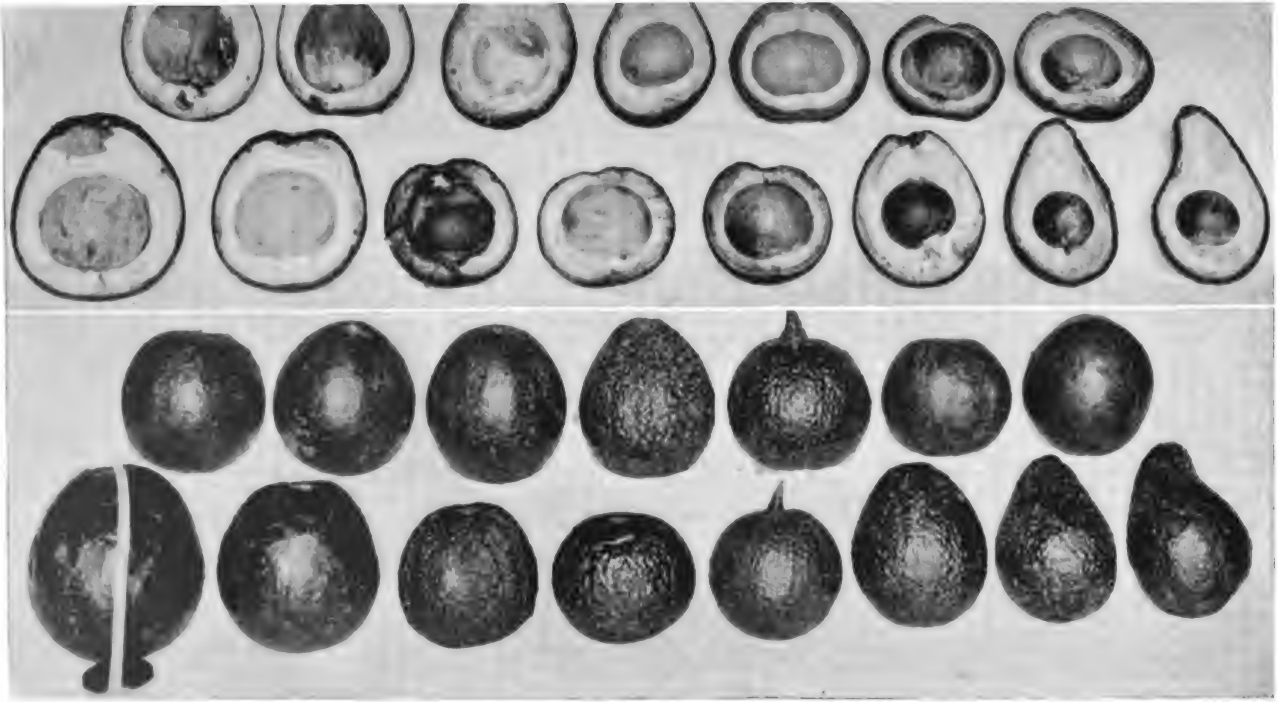
38421. Var. ***flava***. **See S. P. I. No. 38157 for description of the subspecies.**

38422. Var. *macrocarpa*. **38424.** Var. ***hortensis flava***.

38423. Var. ***nigra macrocarpa***.

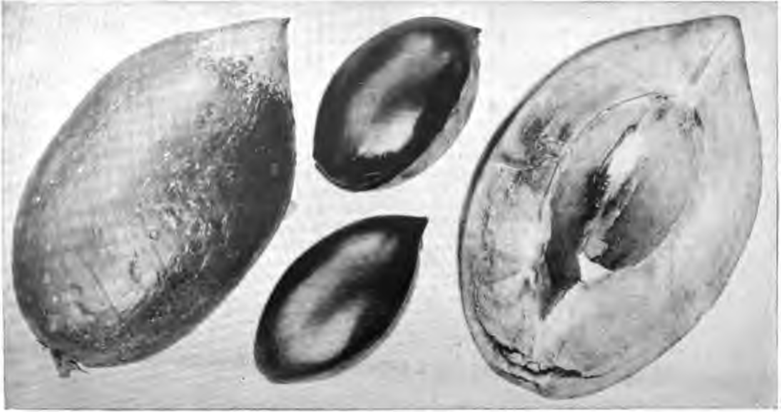
38425. PRUNUS PROSTRATA Labill. **Bush cherry.**

See S. P. I. Nos. 28945, 30564, and 37642 for previous introductions.



GUATEMALAN AVOCADO FRUITS (PERSEA AMERICANA MILLER), S. P. I. NOS. 38400 TO 38402. COLLECTED BY THE O. F. COOK EXPEDITION TO GUATEMALA IN 1914.

Although taken late in the season, when most of the fruit was gone, this illustrates the great variety of size, roughness of exterior, thickness of shell, and relative proportion of seed to fruit of these important winter-ripening avocados, which are beginning to attract the attention of orchardists in Florida and California because of their good quality, hardiness, and remarkably thick shells, which make them excellent shippers. (Photographed by C. B. Doyle at the city of Guatemala, June 1, 1914; P16523CA and P16527CA.)



THE GREEN SAPOTE (ACHRADELPHA VIRIDIS (PITTIER) O. F. COOK), S. P. I. NOS. 38478 TO 38481.

A Guatemalan fruit much superior to and hardier than the true sapote (*Achradelpha mammosa*) and much more likely to be of value in the United States. The tree is large and vigorous, with dense, handsome, deep-green foliage, not unlike the magnolia. The fruit is of good texture and flavor, and most nearly resembles a good Japanese persimmon, but with no trace of astringency. The taste is like that of the sapodilla (*Achras zapota*), but the fruit does not soften so much with maturity and the flesh is not granular like that of the sapodilla. (Photographed at Coban, Guatemala, by O. F. Cook, May 19, 1914; natural size; P16479CA.)

38416 to 38427—Continued.

38426. PRUNUS SPINOSA MACROCARPA Wallroth. **Sloe.**

A large-seeded form of the sloe, which W. J. Bean (*Trees and Shrubs Hardy in the British Isles, vol. 2, p. 253–254*) describes as "a deciduous, suckering shrub 10 to 15 feet high, or in gardens a small tree; bark of young shoots downy, many short branches terminated by a spine. Leaves varying from obovate to oval and ovate, three-fourths of an inch to 1¾ inches long, one-half to three-fourths of an inch wide, sharp toothed, downy beneath on the midrib and veins, becoming sometimes quite glabrous with age. Flowers produced in March or early April, usually on the naked wood, singly, sometimes in pairs, from the previous year's buds, each one-half to three-fourths of an inch across, pure white, and borne on a smooth stalk one-fifth of an inch long. Fruit round, half an inch in diameter, at first blue, then shining black, very harsh to the taste. The sloe is found wild in Britain and other parts of Europe as well as in north Asia. It occurs in hedgerows and in woods, where it is occasionally a tree over 20 feet high. It is oftenest seen in wild places or poor soils as a scrubby bush. The wood of the species is very hard and prized in rural districts for making hayrake teeth."

38427. PTEROCARYA FRAXINIFOLIA (Lam.) Spach. Juglandaceæ.
(*Pterocarya caucasica* C. A. Meyer.) **Caucasian walnut.**

See S. P. I. Nos. 27768 and 30809 for previous introductions. Seed from the Caucasus sent by Mr. G. I. Strunnikoff.

"A large deciduous tree, ultimately 80 to 100 feet high, usually much less in this country (England) and branching low down, forming a wide-spreading head; trunk of large trees 10 to 12 feet in girth, with deeply furrowed bark; ends of young shoots minutely scurfy. Leaves 8 to 18 inches (sometimes over 2 feet) long, composed of from 3½ to 13½ pairs of leaflets; these are stalkless, oblong, obliquely rounded at the base, pointed, toothed, normally 2 to 4½ inches long by three-fourths of an inch to 1¾ inches wide (occasionally, on vigorous shoots, 8 or 9 inches long); dark green, smooth and glossy above, tufted with stellate hairs along the midrib beneath; common stalk round. Male catkins 3 to 5 inches long, cylindrical, the flowers closely packed; female catkins 12 to 20 inches long, with the flowers scattered; both pendulous; afterwards developing nuts which, with the wings, are three-fourths of an inch in diameter, roundish, oblique, horned at the top. Native of the Caucasus and Persia, inhabiting moist places. It was introduced to France by the elder Michaux, who took back seeds from Persia in 1782. According to Elwes, the finest specimen in Britain is at Melbury, in Dorset, which is 90 feet high and 12 feet in girth of trunk. There is a beautiful specimen at Claremont, Surrey, which, when I saw it in 1910, measured 19 feet around its short, rugged trunk. The tree likes a rich, loamy soil and abundant moisture, and whilst the fine specimens mentioned above show that it will thrive very well in the south of England, it loves more sunshine than our climate affords. The lover of trees will find nothing more interesting in and around Vienna than the magnificent examples of Pterocarya. There, of course, the summers are much hotter and the winters colder than ours; the tree bears fruit freely and is very striking in late summer when hung with the long, slender catkins." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 261–262.*)

38428 to 38434. Cocos NUCIFERA L. Phœnicaceæ. **Coconut.**

From Pago Pago, American Samoa. Presented by Commander C. D. Stearns, Governor of American Samoa. Received May 25, 1914.

Notes by Commander Stearns, except that the meaning of the native names is given by Mr. W. E. Safford.

38428. (4) *Niu Afa.* Cordage coconut. A good tree but the nuts are mostly picked green, owing to the fact that the husk is considered of more value by the natives in the manufacture of sinnet, which is used as a binding twine in the construction of Samoan houses.

38429. (2) *Niu Ui.* Dark-colored coconut. This has a very thick kernel and the trees yield from 80 to 100 nuts per year.

38430. (1) *Niu Mea.* Ordinary coconut. This has a very thick kernel and the trees yield from 80 to 100 nuts per year.

38431. *Niu Vai.* Water-bottle coconut.

38432. (5) *Niu Lea.* Fine-flavored coconut. A tree that seldom grows over 8 to 10 feet high, producing a large nut; the kernel is better suited for confectionery purposes than for copra. The Samoan coconut has a very high value in the copra market.

38433. *Niu Nai.* Select, or choice coconut.

38434. (3) *Niu Kea.* Pale-leaf coconut. This has a very thick kernel and the trees yield from 80 to 100 nuts per year.

38435 to 38472.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received June 8, 1914. Quoted notes by Mr. Meyer.

38435 and 38436. LENTILLA LENS (L.) W. F. Wight. Fabaceæ.
(*Lens esculenta* Moench.) **Lentil.**

38435. "(No. 2014a. Sianfu, Shensi, China. January 24, 1914.) A small variety of lentil, much grown as a winter field crop all through the milder sections of the Provinces of Honan, Shansi, Shensi, and Kansu; also much planted as a ground cover in persimmon orchards and among other fruit trees. The seeds are sown in the fall after the other crops have been harvested; they germinate quickly, but make little growth during the winter months. In spring, however, they shoot up rapidly and in June they are harvested, after which winter wheat or short-seasoned soy beans, mung beans, or other quick-maturing crops are sown. Chinese name ***Tsa pien tou***, meaning 'mixed flat beans.' This lentil deserves a trial as a winter crop among citrus orchards and other fruit trees in the mild-wintered sections of the United States."

38436. "(No. 2015a. Puchowfu, Shansi, China. February 10, 1914.) A larger variety of lentil; otherwise the same remarks apply to it as to the preceding number [S. P. I. No. 38435]. The lentil might possibly also be grown as a summer crop in the intermountain sections, either for forage purposes or for human food."

38437. VICIA FABA L. Fabaceæ. **Horse bean.**

"(No. 2016a. Sianfu, Shensi, China. January 24, 1914.) A variety of horse bean grown as a winter garden crop in the milder parts of

38435 to 38472—Continued. (Quoted notes by Mr. F. N. Meyer.)

Shensi. The beans are planted in the fall, make but little growth during the winter, but in spring they make an astonishingly rapid growth and the green beans are one of the earliest vegetables on the markets. Of value as a garden or field crop for the mild-wintered sections of the United States, especially in the West and Southwest; possibly also for the intermountain sections. Chinese name *Hsiao ts'an tou*, meaning 'small silkworm bean,' referring to the silky lining of the green pod."

38438 to 38440. PISUM spp. Fabaceæ. **Pea.**

From Sianfu, Shensi, China. Collected January 24, 1914.

38438 and 38439. PISUM SATIVUM L.

38438. "(No. 2017a.) A small yellow variety of garden pea, much grown as a winter crop throughout the milder sections of Shantung, Honan, Shansi, Shensi, and Kansu, and especially utilized as a cover crop in persimmon orchards. To be utilized in America like Nos 2014a and 2015a [S. P. I. Nos. 38435 and 38436]. Chinese name *Huang wan tou*, meaning 'yellow pea bean.'"

38439. "(No. 2018a.) A variety of garden pea, somewhat different from No. 2017a [S. P. I. No. 38438]; but the same remarks apply to it."

38440. PISUM ARVENSE L. **Field pea.**

"(No. 2019a.) A variety of field pea grown in immense quantities as a winter crop all through the milder parts of north-central China. The roughly broken peas form the main food, when mixed with moistened, chopped-up straw, for all the hard-working farm animals. For possible uses see remarks under Nos. 2014a and 2015a [S. P. I. Nos. 38435 and 38436]. Chinese name *Hei wan tou*, meaning 'black pea bean.'"

38441 to 38446. PHASEOLUS spp. Fabaceæ. **Bean.**

38441. PHASEOLUS CALCARATUS Roxb.

"(No. 2020a. Kwanyintang, Honan, China. December 20, 1913.) A rare variety of bean used in soups as a human food, also being mixed with chopped and moistened straw and fed to domestic animals. Chinese name *Wan tou*, meaning 'pea bean.' This bean is said to be very prolific, and it does not require a long season to mature."

38442 and 38443. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. **Adzuki bean.**

38442. "(No. 2021a. Sianfu, Shensi, China. January 24, 1914.) A large, white variety of adzuki bean used boiled in soups, for bean-sprout production, and when ground up and mixed with sugar as a stuffing in certain cakes. Chinese name *Pai hsiao tou*, meaning 'white small bean.'"

38443. "(No. 2022a. Lintung, Shensi, China.) A mixed lot of adzuki beans, consisting of several distinct varieties. Used like No. 2021a [S. P. I. No. 38442], being also sparingly fed to domestic animals. Chinese name *Tsa hsiao tou*, meaning 'mixed small beans.'"

38444 and 38445. PHASEOLUS VULGARIS L. **Bean.**

From Sianfu, Shensi, China. Collected January 24, 1914.

38435 to 38472—Continued. (Quoted notes by Mr. F. N. Meyer.)

38444. "(No. 2023a.) A red-seeded variety of garden bean much grown as a vegetable around Sianfu. Of value possibly for semiarid climes. Chinese name *Hung yün tou*, meaning 'red garden bean.'"

38445. "(No. 2024a.) A white-and-red speckled variety of garden bean much grown around Sianfu. Of value, like No. 2023a [S. P. I. No. 38444]. Chinese name *Hua yün tou*, meaning 'mottled garden bean.'"

38446. Phaseolus angularis (Willd.) W. F. Wight. **Adzuki bean.**

"(No. 2025a. Sianfu, Shensi, China. January 24, 1914.) A large red variety of adzuki bean, used in all ways like No. 2021a [S. P. I. No. 38442.] Chinese name *Hung hsiao tou*, meaning 'red small bean.'"

38447 to 38449. Vigna sinensis (Torner) Savi. Fabaceæ. **Cowpea.**

38447. "(No. 2026a. Sianfu, Shensi, China. January 24, 1914.) Mixed varieties of cowpeas, eaten as human food. Chinese name *Tsa chiang tou*, meaning 'mixed cowpea.'"

38448. "(No. 2027a. Lingpau, Honan, China. December 24, 1913.) A red-seeded variety of cowpeas, rare. Used like No. 2026a [S. P. I. No. 38447]. Chinese name *Hung chiang tou*, meaning 'red cowpea.'"

38449. "(No. 2028a. Sianfu, Shensi, China. January 24, 1914.) A variety of cowpea, being white with a black 'eye.' Used like Nos. 2026a and 2027a [S. P. I. Nos. 38447 and 38448]. Chinese name *Yang yen pai chiang tou*, meaning 'sheep's-eye white cowpea.'"

38450 to 38462. Soja max (L.) Piper. Fabaceæ. **Soy bean.**
(*Glycine hispida* Maxim.)

38450 and 38451.

From Sianfu, Shensi, China. Collected January 24, 1914.

38450. "(No. 2029a.) A large variety of yellow-seeded soy bean. Chinese name *Ta huang tou*, meaning 'large yellow bean.'"

38451. "(No. 2030a.) A medium-large variety of yellow-seeded soy bean. Chinese name *Ta huang tou*, meaning 'large yellow bean.'"

38452. "(No. 2031a. Puchowfu, Shansi, China. February 10, 1914.) A large, yellow-seeded variety of soy bean. Chinese name *Ta huang tou*, meaning 'large yellow bean.'"

38453 to 38457.

From Sianfu, Shensi, China. Collected January 24, 1914.

38453. "(No. 2032a.) A small, yellow-seeded variety of soy bean. Chinese name *Hsiao huang tou*, meaning 'small yellow bean.'"

38454. "(No. 2033a.) A small, yellowish seeded variety of soy bean. Chinese name *Huang tou*, meaning 'yellow bean.'"

38455. "(No. 2034a.) A very small, yellow-seeded variety of soy bean. Chinese name *Hsiao huang tou*, meaning 'small yellow bean.'"

38435 to 38472—Continued. (Quoted notes by Mr. F. N. Meyer.)

38456. "(No. 2035a.) A variety of soy bean with light-green seeds. Chinese name *Ch'ing tou,* meaning 'green bean.' Used pickled in brine as appetizers with meals."

38457. "(No. 2036a.) A variety of soy bean with dark-green seeds. Used like No. 2035a [S. P. I. No. 38456]. Chinese name *Ch'ing tou,* meaning 'green bean.'"

38458. "(No. 2037a. Kwanyintang, Honan, China. December 20, 1913.) A rare variety of soy bean, of dark olive-drab color. Said to be very productive. Chinese name *Huai tou.*"

38459. "(No. 2038a. Lingpao, Honan, China. December 24, 1913.) A rare local variety of soy bean, having reddish seeds. Chinese name *Ta tzŭ tou,* meaning 'large violet bean.'"

38460 to 38462.

From Sianfu, Shensi, China. Collected January 24, 1914.

38460. "(No. 2039a.) A black-and-brown striped variety of soy bean, used mainly roasted as a delicacy. Chinese name *Hu p'i tou,* meaning 'tiger-skin bean.'"

38461. "(No. 2040a.) A large, black-seeded variety of soy bean. Chinese name *Ta hei tou,* meaning 'large black bean.'"

38462. "(No. 2041a.) A small, black-seeded variety of soy bean, used mainly boiled as a feed for hard-working draft animals. Chinese name *Hsiao hei tou,* meaning 'small black bean.'"

38463. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Puchowfu, Shansi, China. Collected February 10, 1914.

"(No. 2042a.) A vigorous variety of kaoliang, producing long, strong stems, much employed in building the poorer kinds of dwellings. The grains are used for distilling purposes and as feed for animals. Chinese name *Hung kao liang,* meaning 'red kaoliang.'"

38464. MEDICAGO SATIVA L. Fabaceæ. **Alfalfa.**

From Linchinhsien, Shansi, China. Collected February 11, 1914.

"(No. 2043a.) An alfalfa extensively grown here and there on fairly alkaline soils. The young sprouts are eaten by the people as a vegetable. Chinese name *Mu hsü,* meaning 'wooden beard.'"

38465. TRIGONELLA FOENUM-GRAECUM L. Fabaceæ. **Fenugreek.**

From Sianfu, Shensi, China. Collected January 24, 1914.

"(No. 2044a.) A legume grown as a winter vegetable around Sianfu; tastes slightly bitter. Chinese name *K'u t'ou tzŭ,* meaning 'bitter head.' Of value possibly as a winter-forage plant for the mild-wintered sections of the United States."

38466. CANNABIS SATIVA L. Moraceæ. **Hemp.**

From Sianfu, Shensi, China. Collected January 24, 1914.

"(No. 2045a.) A variety of hemp, said to produce very strong fiber. Chinese name *Ma tzŭ,* meaning 'hempseed.'"

38435 to 38472—Continued. (Quoted notes by Mr. F. N. Meyer.)

38467 and 38468. PINUS ARMANDI Franchet. Pinaceæ. **Pine.**

38467. "(No. 2046a. Tungkwanhsien, Shensi, China. December 26, 1913.) Edible pine seeds, coming from the Tsin Range. Chinese name *Sung tzŭ*, meaning 'pine seeds.'"

38468. "(No. 2047a. Tahuashan, Shensi, China. December 29, 1913.) A pine, growing to medium size only; produces very large cones, full of large edible seeds, which are eagerly collected by the priests in the temples, while the cones supply an excellent fuel. Occurs on somewhat sheltered spots at altitudes of 5,000 feet and over."

38469. AMYGDALUS PERSICA L. Amygdalaceæ. **Peach.**
(*Prunus persica* Stokes.)

From Feicheng, Shantung, China. Collected March 26, 1914.

"(No. 2048a.) A very large clingstone peach of which grafted trees and scions are sent under No. 1213 [S. P. I. No. 38178]."

38470. AMYGDALUS PERSICA PLATYCARPA (Decne.) Ricker. Amygdalaceæ. **Flat peach.**

"(No. 2049a.) A large variety of flat peach, said to be of light-red color, while being very juicy and sweet. Chinese name *Ta hung pien t'ao*, meaning 'large red flat peach.'"

38471 and 38472. JUGLANS REGIA L. Juglandaceæ. **Walnut.**

38471. From Weichutchien, south of Sianfu, Shensi, China. Collected January 22, 1914.

"(No. 2050a.) A Chinese variety of walnut of quite elongated shape, said to be grown in the Tsin Range."

38472. From Peking, China. Collected April 17, 1914.

"(No. 2051a.) A peculiar walnut with strangely deep grooves and markings, highly prized by the Chinese, who use them in pairs to fumble with in their hands to keep the finger muscles limber. Said to grow in the mountains to the north of Peking. Possibly a hybrid between *Juglans regia* and *J. mandchurica*. Chinese name *Shan ho t'ao*, meaning 'mountain walnut.'"

38473 to 38476. Coix spp. Poaceæ. **Job's-tears.**

From the northern Shan States, Burma. Presented by Mr. H. G. Carter, Economic Botanist to the Botanical Survey of India, Indian Museum, Calcutta, India. Received April 20, 1914. Quoted notes by Mr. Carter.

For detailed information, see Sir George Watt's account of Coix, published in the Agricultural Ledger No. 13, of 1904.

38473. COIX LACRYMA-JOBI MA-YUEN (Rom.) Stapf.

"Forma 2. No. 3b193, edible."

38474. COIX LACRYMA-JOBI L.

"Var. *typica*. No. 3b194. The typical Job's-tears."

38475. COIX LACRYMA-JOBI GIGANTEA (Koen.) Stapf.

"No. 3b196."

38476. COIX LACRYMA-JOBI L.

"Var. *typica*. No. 3b194. The typical Job's-tears."

38477. PERSEA AMERICANA Miller. Lauraceæ. Avocado.
(*Persea gratissima* Gaertn. f.)

From Coban, Department of Alta Verapaz, Guatemala. Collected by Mr. O. F. Cook, of the Bureau of Plant Industry. Received June 10, 1914.

"*Dieseldorff* No. 1. Scions from a large spreading tree, 30 feet high, in the garden of Señor Dieseldorff at Coban; altitude 4,300 feet. Fruit oval, hard shelled, small at this time (May 22). Flesh firm, smooth; seed medium large." (*Cook.*)

For further description, see S. P. I. Nos. 38400 to 38402.

38478 to 38481. ACHRADELPHA VIRIDIS (Pittier) O. F. Cook.
(*Calocarpum viride* Pittier.) **Sapotaceæ. Injerto.**

From Coban, Department of Alta Verapaz, Guatemala; altitude 4,300 feet. Collected by Mr. O. F. Cook, of the Bureau of Plant Industry, May 22, 1914. Received June 9–10, 1914.

"Another find not properly appreciated heretofore is the green sapote, *injerto* (Spanish) or *raxtul*, as the Kekchi Indians call it. This was described recently by Pittier as *Calocarpum viride*, but the generic name is a homonym and I have proposed *Achradelpha* to replace it. This new species *Achradelpha viridis* is a much finer tree than the true sapote, and apparently much better adapted to a cool climate. The foliage is much heavier than that of the sapote and of a deeper green color; in form and general appearance not very unlike that of the loquat, but the trees grow to a large size and are very handsome. They take the place of the sapote altogether at the higher altitudes around Coban, where they thrive at elevations of 3,000 to 6,000 feet, though both trees are found in the Senshu and Cajabon districts. The failure of the sapote to thrive in Florida need not exclude the green sapote, and a trial planting will be in order. The seeds are like those of the true sapote, but smaller and in some varieties much shorter. The fruits of this green sapote run through a series of different forms, about the same as those of the sapodilla, from long, pointed, oval to short, broad, and flat or concave at the base. The fruit is of good texture and flavor, and the taste is like that of the sapodilla (*Achras zapota*), but the fruit does not soften so much with maturity and the flesh is not granular like that of the sapodilla. The quality of the flesh is distinctly superior to that of the true sapote and much more likely to please the American palate. Anybody who likes papayas or Japanese persimmons might be expected to think favorably of the green sapote, as it comes distinctly into the same class of sweetish, smooth, tender, pulpy fruits. There is no astringency or unpleasant aftertaste whatever, so that none of the curing difficulties of the persimmons would be encountered. On the outside the fruits are a pleasing yellowish green color, more or less russeted at either end. The flesh inside is yellow, but with a reddish or brownish tinge, not as yellow as some of the Japanese persimmons nor as dark as others. There are many varieties of the green sapote in Guatemala, those of the Coban district being distinctly superior to those found in the markets of the city of Guatemala." (*Cook.*)

38478. (No notes.)

38479. Small, heart shaped.

38480. Large, top shaped.

38481. Heart shaped.

For an illustration of the fruit of the green sapote, see Plate X.

38482. Diospyros kaki L. f. Diospyraceæ. **Persimmon.**

From Sunnylands, Bermuda. Presented by Mr. Theodore Outerbridge, through Mr. Peter Bisset, of the Bureau of Plant Industry. Received June 9, 1914.

"Cuttings of a variety bearing annually about 50 staminate flowers to one pistillate; therefore it should prove a valuable pollinator for planting in orchards of kaki persimmons, if the plants maintain this feature, as up to the present time a great loss in fruit is incurred yearly in these orchards from lack of pollination. The fruit borne by the parent tree is said to be of good size and quality." (*Bisset.*)

38483. Diospyros discolor Willd. Diospyraceæ. **Mabola.**

From Hamilton, Bermuda. Presented by Mr. T. M. Dill, through Mr. Peter Bisset, of the Bureau of Plant Industry. Received June 9, 1914.

"Scions from a tree growing in the garden of Mr. T. M. Dill, Hamilton, Bermuda." (*Bisset.*)

38484 and 38485. Hordeum distichon nutans Schubl. Poaceæ. **Barley.**

Presented by Mr. J. B. Jackson, American consul, Aleppo, Syria. Received June 2, 1914. Quoted notes by Mr. Jackson.

38484. "No particular name is applied locally to this variety except 'white' barley. The qualities possessed are unknown here. The market price for this and the black variety is the same."

38485. "No particular name is applied locally to this variety except 'black' barley. According to dealers the black barley is very hard and resists against insects for two or three years, and even longer if kept in dry places. The qualities possessed are unknown here. The market price for this and the white variety is the same."

38486. Bombycodendron vidalianum (Naves) Merr. and Rolfe. (*Thespesia campylosiphon* Vidal.) Malvaceæ. **Lanutan.**

From Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Division of Horticulture, Lamao Experiment Station. Received June 4, 1914.

"Seed of the *lanutan*, a tree valuable for its wood, and also quite ornamental, with large white flowers having a red center, shaped like those of the tropical *Hibiscus rosasinensis*, about 7 inches in diameter. It is probably too tender for Florida." (*Wester.*)

38487 and 38488.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received May 27, 1914. Quoted notes by Mr. Meyer.

38487. Crataegus pinnatifida Bunge. Malaceæ. **Hawthorn.**

From Taianfu, Shantung, China. Collected March 20, 1914.

"(No. 47b.) A sample of fine large Chinese hawthorn fruits. Excellent for jellies, preserves, etc. Price locally 5 to 7 cents (Mexican) per catty (16 ounces). Grafted trees and scions sent of this variety under No. 1209 [S. P. I. No. 38176], which see for description."

38487 and 38488—Continued. (Quoted notes by Mr. F. N. Meyer.)

38488. Thladiantha dubia Bunge. Cucurbitaceæ.

From Peking, China. Collected April 18, 1914.

"(No. 1217.) Tubers of a climbing cucurbitaceous plant, producing yellow flowers followed by fruits the size of hen's eggs, which become scarlet when fully ripe. The Chinese plant the roots of male and female plants close together so as to insure a bountiful supply of fruits. The roots of male plants are said to be large and elongated, while those of the female plants are small and round."

38489. Trichosanthes kirilowii Maxim. Cucurbitaceæ. **Gourd.**

From Peking, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received at the Plant Introduction Field Station, Chico, Cal., May 25, 1914.

"(No. 1218. April 28, 1914.) Tubers of a rare gourd, cultivated as an ornamental perennial. The fruits are also used for medicinal purposes, when dried. Chinese name *Kua lü*." (*Meyer.*)

38490. Hordeum vulgare L. Poaceæ. **Barley.**

From La Paz, Bolivia. Presented by Mr. John D. O'Rear, American minister, La Paz. Received June 9, 1914.

"Seeds of the barley generally grown over the whole Bolivian highlands, and of which, as far as I have been able to ascertain, no other varieties are used. It is planted, and in most cases the Indians forget all about it until time to reap the harvest. To plant it, the ground is tilled in a primitive manner and as the seed is thrown in, it is covered with about half an inch of dirt, this being done especially to keep the birds from eating the seed. The planting is done here in the early spring and the crop reaped in the autumn, but in many parts of the country it is planted the year round and always seems to produce equally well. Once planted, in some places it is watered daily, this producing the best results, but in places where water is scarce the irrigation is left entirely to the rains. The Indians very seldom use any fertilizers, excepting now and then a little manure, and almost immediately after reaping a crop they begin to plow and prepare the ground for another planting of seed. After four or five years they allow the ground to rest for a year. The grass is used generally all over the highlands as food for cattle and especially for horses and mules, when it is dry, and the grain is also fed to cattle and used for human food. The barley grows to a height of about 3 or 4 feet under ordinary circumstances here, and it is allowed to dry thoroughly before it is cut. The thrashing is done by allowing donkeys to tramp on it till the grain is thoroughly separated." (*O'Rear.*)

38491 and 38492. Ulmus spp. Ulmaceæ. **Elm.**

From Cambridge, England. Presented by Mr. R. Irwin Lynch, Botanic Garden. Received June 9, 1914.

38491. Ulmus foliacea Gilib.

"*East Anglian* elm." (*Lynch.*)

"A tree 100 feet high, represented in Great Britain by several forms varying in habit from slender, cone-shaped trees to beautifully pendulous-branched ones. The typical form is a pyramidal tree, at least up to middle age, the branches often corky, sometimes extremely so; young shoots almost or quite without down in the adult tree, slender. Leaves

38491 and 38492—Continued.

obliquely oval or ovate, doubly toothed, narrowing at the apex to a shortish point, very unequal at the base (one side of the blade being tapered, the other rounded or semicordate), 1½ to 4 inches long, 1 to 2 inches wide (on vigorous shoots considerably larger), upper surface glossy green and smooth, lower surface downy only in the vein axils or along the midrib; stalk one-fourth to half an inch long; veins in 10 to 13 pairs. Flowers crowded in dense clusters close to the leafless shoot. Fruit oval or obovate, smooth, one-half to five-eighths of an inch long, notched at the top, with the seed close to the notch. Native of Europe and western Asia, and one of the two undisputed species of British elms. The other, *U. montana*, is amply distinguished by the seed being in the middle of the fruit, by the very downy shoots and much larger, downy leaves. The common elm, *U. campestris*, differs in its rounder leaf, downy all over beneath and rough above. The usual autumn color is yellow." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 618.*)

38492. ULMUS HOLLANDICA VEGETA (Loud.) Rehder.

"The *Huntingdon* elm." (*Lynch.*)

"This fine elm, according to information given to Loudon by Mr. John Wood, of Huntingdon, in 1836, was raised in the nursery of his firm about the middle of the eighteenth century from seed gathered in Hinchingbrook Park. It is, no doubt, a hybrid between *U. montana* [*U. scabra* Miller] and *U. nitens* [*U. glabra* Miller], and, like many hybrid trees, is of remarkably vigorous growth. One of the largest of all elms, it reaches 100 feet in height, forming a thick, short trunk 5 or 6 feet in diameter with ascending branches. Leaves up to 5 or 6 inches long, more than half as wide, smooth above and downy beneath only in the leaf axils. Fruit oval, up to seven-eighths of an inch long, the seed not reaching to the notch at the top. This last character and its less downy leaves distinguish it from *U. major*, of presumably the same parentage. The veins, too, are more numerous (14 to 18 pairs) than in *U. major*. According to Elwes it has the defect of splitting in the trunk, due to its habit of forking low down. This, however, can be prevented by timely pruning. The tree produces suckers." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 621.*)

38493 to 38495.

From Chiengrai, Siam. Presented by Dr. W. T. Lyon, Overbrook Hospital. Received June 4, 1914. Quoted notes by Dr. Lyon.

38493 and 38494. ORYZA SATIVA L. Poaceæ. **Rice.**

38493. "*Kow chow*, Siamese name. This bears a little heavier than *Kow san* [S. P. I. No. 38494]. Is white and has very hard kernels, and resembles American rice very much. About 18 varieties are grown here in North Siam."

38494. "*Kow san*, Siamese name. Is very glutinous and is prepared by steaming; the kernels are very sticky. The fields are not measured in acres like ours in America, but are measured by baskets. A field planted to *Kow san*, which requires 4 baskets to plant, will yield from 400 to 450 baskets."

38495. GOSSYPIUM sp. Malvaceæ. **Cotton.**

"This was grown at Chiengkum about 60 miles from here, near the French Indo-China border."

38496 and 38497. ERIOBOTRYA JAPONICA (Thunb.) Lindl. Malaceæ.
Early loquat.

From Italy. Presented by Dr. Gustav Eisen, Rome, Italy. Received June 10, 1914. Quoted notes by Dr. Eisen.

38496. "From Naples, Italy. Seeds of a large plum-shaped loquat. Very early; ripe April 1. Extraordinarily sweet; seeds variable and not in conformity with the fruit. This is the earliest in the market and quite remarkable as to size and quality."

38497. "From Boscotrecase, Italy. Giant loquat. Very finest quality and largest size. Of bright deep-orange color, seeds round. The tree is said to be an enormous bearer and of the very best quality. May 1 to 24."

38498. SYNECANTHUS FIBROSUS H. Wendland. Phœnicaceæ.
Uchul palm.

From Senahu, Guatemala. Collected by Mr. O. F. Cook, of the Bureau of Plant Industry. Received June 11, 1914.

"Ripe fruits red. Collected May 20, 1914. A slender, graceful, pinnate-leaved palm reaching 15 feet in height, with large, open inflorescences bearing beautiful bright-red fruits the size of a large cherry. Grows in cool, damp mountain-side forests in the Senahu district at an altitude of 2,000 to 4,000 feet." (*Cook.*)

38499 to 38514.

From Buitenzorg, Java. Presented by the Director of the Botanic Garden. Plants received May 27, 1914.

38499. CITRUS AURANTIFOLIA (Christm.) Swingle. Rutaceæ.

No. 2. *Djeroek citroen basar.*

38500 and 38501. CUDRANIA JAVANENSIS Trecul. Moraceæ.

38500. No. 5.

"This climbing thorny shrub can be utilized for hedges. Fruit edible, of a pleasant taste. The root furnishes a yellow dye." (*Mueller, Select Extra-Tropical Plants.*)

38501. No. 6.

38502 to 38508. CITRUS spp. Rutaceæ.

38502. CITRUS MEDICA L. **Citron.**

No. 7. Var. *genuina* Engl. (*Djeroek citroen.*)

38503. CITRUS AURANTIUM L. **Bitter orange.**

No. 9. (*Djeroek manis.*)

38504. CITRUS HYSTRIX DC.

No. 10. (*Djeroek peoroet.*)

"A wild species whose fruit is used for washing hair and bleaching clothes." (*H. N. Whitford, Forests of the Philippines.*)

"A tree 15 meters in height and 15 to 20 cm. in diameter, wood yellowish, fibrous, with very hard grain, good for making tool handles, and for joinery and cabinetwork." (*Lanessan, Plantes Utiles des Colonies Françaises.*)

38505. CITRUS PAPAYA Hassk.

No. 11. (*Djeroek papaya.*)

38499 to 38514—Continued.

38506 to 38508. Citrus aurantium L. **Bitter orange.**

38506. No. 12. (*Djeroek pandan.*)

38507. No. 14. (*Djeroek balie.*)

38508. No. 15. (*Djeroek balie.*)

38509 and 38510. Severinia buxifolia (Poir.) Tenore. Rutaceæ. (*Atalantia buxifolia* Oliv.)

38509. No. 16. One plant.

38510. No. 17. One plant.

38511. Atalantia monophylla DC. Rutaceæ.

No. 20. Var. *genuina* Hochr.

"A large shrub or small tree, native to India, Ceylon, Burma, Siam, and Indo-China, usually spiny; leaves glabrous or sometimes pubescent, 1 to 3 inches long; petioles short, slightly or not at all winged; flowers borne in axillary panicles; calyx irregularly lobed, split to the base on one side; petals usually 4, stamens 8, the filaments connate and forming a completely closed tube; ovary 3 to 5 celled; fruit from one-half to three-fourths of an inch in diameter, with skin like a lime, globose, with several cells (generally 4), each usually containing one seed and filled with pulp vesicles, making the fruit much like a miniature orange. This tree, still little known outside of India and Ceylon, the type of the genus Atalantia, is one of the promising species for trial as a stock on which to graft other citrus fruits and also for use in breeding new types of citrus fruits. The fruits yield an oil which in India is considered a valuable application in chronic rheumatism." (*W. T. Swingle. In Bailey, Standard Cyclopedia of Horticulture.*)

38512. Diospyros peregrina (Gaertn.) Guerke. Diospyraceæ. (*Diospyros embryopteris* Pers.).

No. 21.

See S. P. I. No. 33567 for previous introduction and description.

38513 and 38514. Garcinia kidia Roxb. Clusiaceæ.

38513. No. 23. One plant.

38514. No. 24. One plant.

"*Toung-tha-lai.* An evergreen tree 50 to 70 by 20 to 30 by 5 to 6 feet. Berry the size of a small lime, globular ovoid, dark purple-brown, much depressed at the apex, terminated by a nipple-shaped protuberance on which the thick and short-styled stigma rests. Frequent in the moister upper mixed and in the tropical forests all over Burma from Chittagong, Pegu, and Martaban down to Tenasserim and the Andamans. Flowers in March to May, fruits May to June. Shade loving. Substratum permeable sandstone and metamorphic. Wood white, turning yellowish, rather heavy, coarsely fibrous, loose grained, very perishable. Yields inferior gamboge." (*Vesque, Guttiferæ.*)

38515 and 38516. Chamaedorea spp. Phœnicaceæ.

From Senahu, Department of Alta Verapaz, Guatemala. Collected by Mr. O. F. Cook, of the Bureau of Plant Industry. Received June 11, 1914. Quoted notes by Mr. Cook.

38515. Chamaedorea sp. **Canquib palm.**

"A handsome dwarf, finely pinnate-leaved palm, growing in the deep shade of mountain forests and dry protected hillsides in the Senahu district at an altitude of 2,000 to 4,000 feet. Grows up to 3 feet in

38515 and 38516—Continued. (Quoted notes by Mr. O. F. Cook.)

height. Shows wide range of adaptability to flourish under moist forest conditions as well as dry hillsides exposed to considerable dry weather. It is specially attractive as a household or table palm."

38516. CHAMAEDOREA ERNESTI-AUGUSTI H. Wendland.

Shella-accum palm.

"A small, handsome, slender-stemmed, simple-leaved palm, growing in the moist mountain forests of the Senahu district at an altitude of 2,500 feet. Suitable for greenhouse and household cultivation."

38517 to 38522.

From La Paz, Bolivia. Presented by Mr. Horace G. Knowles, Incaoro Mines Company. Received May 26, 1914. Quoted notes by Mr. Knowles.

38517. ZEA MAYS L. Poaceæ. **Corn.**

"*Cuzco.*"

38518. CITRULLUS VULGARIS Schrad. Cucurbitaceæ. **Watermelon.**

"These seeds were taken from small melons resembling somewhat in size, flavor, and color of flesh the Princess Marie and Roumanian melon."

38519. CUCUMIS MELO L. Cucurbitaceæ. **Muskmelon.**

"Seeds from the largest muskmelon or cantaloupe I ever saw. It weighed about 15 pounds and the flavor was very good. It can be considered the other extreme in size to that of the watermelon [S. P. I. No. 38518]."

38520 to 38522. FRAGARIA CHILOENSIS (L.) Duchesne. Rosaceæ.

Strawberry.

"I have been very much impressed with the firmness and keeping quality of the Bolivian strawberry. To reach this market they have to make a long and hard trip on burros, and after that I have kept them for two weeks in good condition. It occurred to me that they might be crossed with some of our berries and impart to them some of their firmness and keeping quality. They are longer than our berries, and the color is light flesh, with shade of yellow, not as pretty as our deep-red varieties. The white one with cream tint [S. P. I. No. 38520] was curious because of its color and also its flower, which was quite distinct from that of our wild strawberry."

38523. MEDICAGO SATIVA L. Fabaceæ. **Alfalfa.**

From Mamouret ul Aziz (Harput), Turkey. Presented by Mr. William W. Masterson, American consul. Received May 28 and June 9, 1914.

"These seeds were procured last season near a mountain village some six hours away." (*Masterson.*)

38524. ACACIA VEREK Guill. and Per. Mimosaceæ. **Gum arabic.**

From Khartum, Sudan. Presented by Mr. S. A. Wood, Assistant Director of Forests, Department of Agriculture and Forests. Received June 13, 1914.

"This tree produces the true gum arabic of commerce. It thrives best in a dry climate, with a maximum rainfall of 21 inches and a dry period of no rain for several months. Any soil will suit it. The tree as it grows out here is fit for tapping in the fifth year after sowing." (*Wood.*)

Distribution.—The Senegambia region of Upper Guinea on the west coast of Africa, and in the Nile Valley in Nubia.

38525 and 38526. ANNONA spp. Annonaceæ.

From Pretoria, Union of South Africa. Presented by Mr. I. B. Pole Evans, chief, Division of Botany, Department of Agriculture. Received June 11, 1914.

38525. ANNONA SENEGALENSIS Pers. **Anona.**

"Fresh seeds collected by Dr. Medley Wood, of the Natal Herbarium, Durban." (*Pole Evans.*)

"*Annona senegalensis* Pers. is remarkably variable, occurring sometimes as a small shrub less than a meter high, and sometimes as a large tree. The flowers are 6 petaled, with the inner petals narrow, connivent, their tips meeting above the center of the gynœcium. The seeds are small, oblong, hard, smooth, and glossy, with relatively large caruncles at the base, somewhat like those of *A. cornifolia* and *A. nutans* of southern Brazil and Paraguay. It is possible that the species *A. senegalensis* as now understood may be found to be composed of several species." (*Safford, Classification of Annona.*)

38526. ANNONA CHERIMOLA Miller. **Cherimoya.**

"Seeds of the cultivated variety grown by Mr. Trollope, Wonderboom, Pretoria, Pretoria district. Although of fair size, it is not abnormal by any means, as fruits up to 21 pounds in weight are not altogether uncommon. The variety in question is unnamed and was grown from seed of a specimen brought to Durban from India, which country may be set down as the home of the fruit. The custard-apple has a very wide range in South Africa; it is grown successfully in the warmer districts of the Transvaal, Natal, and Cape Provinces, and may be found from Louis Trichardt in the north to the district of George on the south coast. Propagation is simple, as the tree grows readily from seed, but (as in the case of most other fruits) it can not be depended upon to reproduce itself true from seed; recourse therefore is had to grafting, and this is accomplished usually by much the same method as the Western Province farmer employs in grafting his grapevines; the scions are inserted in the stocks and the whole covered over with soil. It appears to be immaterial whether the grafting is done below, on a level with the surface, or above the ground, as long as the scion is covered and kept fairly moist for the first week or two. From what may be gathered from Indian writers on the subject, it would appear that the custard-apple tree has a decided weakness for growing out of cracks and crannies in rocks, old walls, and other similar situations. Possibly in the wild state this may be the case, and so, assuming the correctness of this statement, one is prepared to read that 'a deep stony soil is generally suitable, but alluvial produces good specimens.' From what the writer has seen in South Africa, both the best-grown trees and the finest fruit are produced in the deep free loams, such as may be found along the Magaliesberg Mountains in the Transvaal and in any other parts both of the Cape and Natal. It is necessary, however, for the tree to succeed that a frostless situation be selected in which to plant it; that plenty of room be allowed for the spread of its roots and branches; and that it receive such attention with the pruning shears and cultivator as is meted out to any other fruit tree when planted in orchard form. When single trees are grown in a garden it may be possible to afford them plenty of liquid cow manure, and to this particular dressing they seem to respond more readily than to any other.

38525 and 38526—Continued.

In the case of a small plantation, this system would be more difficult to carry out, but in case cow manure were obtainable it should certainly be used and a complete fertilizer applied biennially. The custard-apple is supposed to be one of those fruits for which a taste must be acquired." (*Agricultural Journal of the Union of South Africa, vol. 6, no. 2, p. 273.*)

38527. ALEURITES FORDII Hemsley. Euphorbiaceæ. **Tung tree.**

From Nice, France. Presented by Dr. A. Robertson Proschowsky. Received June 3, 1914.

38528 and 38529. TRITICUM AESTIVUM L. Poaceæ. **Wheat.**
(*Triticum vulgare* Vill.)

From Johannesburg, Transvaal, Africa. Presented by Mr. J. Burtt Davy. Received June 11, 1914. Quoted notes by Mr. Davy.

38528. "*Gluyas Early.* One of the two useful wheats now grown here."

38529. "*Wolkoren.* One of the two useful wheats now grown here."

38530 to 38532. ORYZA SATIVA L. Poaceæ. **Rice.**

From Georgetown, British Guiana. Presented by Mr. Lester W. Collins, vice and deputy consul in charge, who secured it from Mr. C. A. Bancroft, Science and Agriculture Department. Received June 8, 1914. Quoted notes from Mr. Bancroft.

38530. "Hill or Upland rice No. 6 (H6). Introduced in 1902 from Ceylon. Appearance vigorous. Stooling good. Growth spreading, 2 to 3 feet in height. Grain shape, long; paddy color, pale straw; husking good. Comes to maturity in six months. Milling qualities good and well adapted for making both white and brown rice. In a series of tests extending over nine years (1905 to 1913, inclusive) the mean results are as follows: Bags (120 pounds) paddy per acre, 38.9."

38531. "Ordinary or Lowland rice No. 75 (O75). Eastern name *Sura dhani.* Has been cultivated at the experimental fields since 1905. Appearance vigorous, stooling freely. Growth spreading, 2 to 3 feet height. Grain shape, long; paddy color, pale straw; husking easy. Comes to maturity in six months. Milling qualities good and well adapted for making both white and brown rice. In a series of tests extending over nine years (1905 to 1913, inclusive) the mean results are as follows: Bags (120 pounds) paddy per acre, 38.9. This variety is at present in demand by the East Indians, in whose hands the greater part of the rice cultivation of this colony is."

38532. "*Demerara Creole.* This variety, which was probably brought from the East by the indentured Indians, many years back, is the most extensively cultivated. It has been cultivated in the colony for a number of years. Growth spreading, 2 to 3 feet in height. Grain shape, long; paddy color, pale straw; husking easy. Comes to maturity in six months. Milling qualities good but not quite up to H6 [S. P. I. No. 38530] and O75 [S. P. I. No. 38531]. In a series of tests extending over nine years (1905 to 1913, inclusive), the mean results are as follows: Bags (120 pounds) paddy per acre, 37."

38533. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Victoria, Kamerun, German West Africa. Presented by the director of the experiment station. Received June 1, 1914.

Gabli killiröm. Sown in the rainy season. Seed from the Mora residency in the German lands near Lake Chad.

38534 to 38536.

From Marionofka, Seytler, Crimea, Russia. Procured by Mr. E. Brown, of the Bureau of Plant Industry, from Mr. Christian Fey. Received June 3, 1914.

38534. TRITICUM AESTIVUM L. Poaceæ. **Wheat.**
(*Triticum vulgare* Vill.)

"Semihard winter wheat." (*C. R. Ball.*)

38535 and 38536. HORDEUM spp. Poaceæ. **Barley.**

38535. HORDEUM DISTICHON NUTANS Schubl.

Two-rowed barley.

38536. HORDEUM VULGARE L.

Six-rowed barley.

38537. CHRYSANTHEMUM sp. Asteraceæ.

From Liverpool, England. Presented by Joseph Gardner & Sons. Received June 6, 1914.

Sample of Asiatic pyrethrum.

38538. PTYCHOSPERMA GRACILIS Labill. Phœnicaceæ. **Palm.**

From Belize, British Honduras. Procured by Mr. O. F. Cook, of the Bureau of Plant Industry, from the Belize Botanical Station. Received June 12, 1914.

"No. 1. Small species. April 19, 1914. A cespitose pinnate-leaved palm 12 to 15 feet high, growing in the Belize Botanic Garden about 10 miles from the mouth of the Belize River. Probably suitable for cultivation in Florida and California. The pinnæ are broader than those of *Seaforthia elegans*, and more broadly truncate at the ends. The inflorescence has simple branches covered with a rusty tomentum." (*Cook.*)

38539 and 38540. SEAFORTHIA ELEGANS R. Brown. Phœnicaceæ.
(*Ptychosperma elegans* Blume.) **Palm.**

From Livingston, Department of Izabal, Guatemala. Collected by Mr. O. F. Cook, of the Bureau of Plant Industry. Received June 12, 1914. Quoted notes by Mr. Cook.

38539. "No. 2. Large fruit. April 21, 1914. From a tree with larger seeds than No. 3 [S. P. I. No. 38540].

38540. "No. 3. Small-fruited form. A small palm, 10 to 15 feet high; trunk 4 inches thick, bearing large clusters of coral-red fruits about the size of thorn-apples (Crataegus) and having exactly the same taste."

38541 and 38542. STYLOMA spp. Phœnicaceæ. **Palm.**

From Belize, British Honduras. Procured by Mr. O. F. Cook, of the Bureau of Plant Industry, from the Belize Botanical Station. Handsome fan-leaved palms growing in the Belize Botanic Garden about 10 miles from the mouth of the Belize River; received June 12, 1914.

38541. STYLOMA PACIFICA (Seem. and Wendl.) O. F. Cook.
(*Pritchardia pacifica* Seem. and Wendl.)

No. 4. "Probably suitable only for extreme southern Florida." (*Cook.*)

38542. STYLOMA THURSTONII (Muell. and Drude) O. F. Cook.
(*Pritchardia thurstonii* Muell. and Drude.)

No. 5.

38543. CHAMAEDOREA GRAMINIFOLIA H. Wendland. Phœnicaceæ. **Palm.**

From Lanquin, Department of Alta Verapaz, Guatemala. Collected by Mr. O. F. Cook, of the Bureau of Plant Industry. Received June 12, 1914.

"No. 6. Collected May 7, 1914. Nearly ripe seeds. A small, stoloniferous, slender-stemmed, finely pinnate-leaved palm growing at the summits of very rocky hills and cliffs, after leaving Lanquin on the road to Chiacum. Altitude, about 3,000 feet." (*Cook.*)

38544 to 38547.

Collected on the Roosevelt expedition to South America by Mr. Leo E. Miller, of the American Museum of Natural History, New York City. Received June 9, 1914. Quoted notes by Mr. Miller.

38544 to 38546. ZEA MAYS L. Poaceæ. **Corn.**

38544. "No. 1. Upper Gy Parana River, Brazil. Corn received from the Panetes, or Powetes, Indians on the upper Gy Parana (Machabo) River, Brazil, South America. This tribe of Indians was absolutely unknown. I was the first person to come in contact with them. The Gy Parana flows into the Madeira. March, 1914."

38545. "No. 2. October, 1913. Forty-day corn from southern Argentina, said to mature within 40 days of planting."

38546. "No. 3. October, 1913. Corn from extreme southern Argentina. Said to grow in cold climate; requires five months to mature."

38547. LECYTHIS USITATA Miers. Lecythidaceæ. **Paradise nut.**

"No. 4. May, 1914. Nuts from the lower Amazon. Comparatively rare, considered better, and more expensive than 'Brazil nuts.' Trees are said to produce within three years. Requires marshy or swampy ground in hot locality."

38548 to 38567.

From Guatemala. Collected by Mr. O. F. Cook, of the Bureau of Plant Industry. Received June 18, 1914. Quoted notes by Mr. Cook, unless otherwise indicated.

38548 to 38567—Continued. (Quoted notes by Mr. O. F. Cook.)

38548. SOLANUM MURICATUM Alton. Solanaceæ. **Pepino.**

"June 6, 1914. Antigua, Guatemala."

"According to Wercklé, the unripe fruits of this species under the name *pepino mango* are eaten cooked like pumpkins, and when ripe form a very good salad. It appears to be native to Guatemala, but in Costa Rica, where it is also called *manguena*, it is met with only in a state of cultivation." (*Pittier, Plantes Usuales de Costa Rica.*)

Cuttings and rooted plants.

38549 to 38564. PERSEA AMERICANA Miller. Lauraceæ. **Avocado.**
(*Persea gratissima* Gaertn. f.)

38549. "No. 1. From Antigua, Department of Sacatepeques, Guatemala. Cuttings from a large spreading tree, 35 feet high, growing behind the Hotel Casa de Rojas. Altitude 5,000 feet. At this time (June 6) the tree carried a large crop of mature fruit. The fruit was large (3½ inches in diameter), round, and hard shelled. The outer skin was smooth and of a pleasing dark-green color. The flesh was thick, firm, pale yellow near the seed, becoming yellowish green toward the surface. Flavor excellent. Seed medium large."

38550 to 38564.

Hard-shelled avocados from the market, city of Guatemala, Guatemala.

38550. "No. 1. Round type, 10 cm. long by 9 cm. in diameter. Surface green, smooth. Shell thick. Flesh firm, pale yellowish green near seed, becoming darker toward surface. Seed large."

38551. "No. 2. Round green type with rather smooth outer surface thick; tough shell. Flesh pale, whitish, firm; seed large. Fruit measured about 10.5 cm. long by 9.5 cm. in diameter."

38552. "No. 3. Fruit had thick flesh of a bright-yellow color, much superior in attractiveness to Nos. 1 and 2 [S. P. I. Nos. 38550 and 38551]. Fruit measured 10.5 cm. long by 9.5 cm. in diameter, shell less than 2 mm. thick, but fairly firm. Outer surface rather smooth. Seed smaller than Nos. 1 and 2.

38553. "No. 4. Fruit with very rough outer surface, green, slightly longer than broad. Flesh superior to any of the others. Shell thick and hard. Seed rather small. Fruit measures about 10.5 cm. long by 9.5 cm. in diameter."

38554. "No. 5. Fruit round, green, very rough-skinned, shell extremely hard and thick (4 to 5 mm.). Flesh pale greenish white around seed, becoming darker toward outer shell. Seed rather large. Fruit measured about 8.5 cm. long by 9 cm. wide. Flat on both ends."

38555. "No. 6. Fruit green, rather smooth on surface, not so large as No. 5 [S. P. I. No. 38554], but of similar shape. Shell thick. Flesh pale greenish white near the seed, becoming darker toward the skin; rather thin but firm. Seed large."

38548 to 38567—Continued. (Quoted notes by Mr. O. F. Cook.)

38556. "No. 7. Fruit oval, outer surface very smooth, pleasing dark-green color. Shell thick. Flesh thick, firm, pale greenish white near the seed, becoming darker toward the shell. Fruit measured 10.5 cm. long by 9 cm. in diameter. Seed rather small."

38557. "No. 8. This was the largest fruit seen in the market. Obovate, outer skin purplish, smooth, 12 cm. (5 inches) long by 10.5 cm. in diameter. Shell thick. Flesh thick, firm, pale greenish white near the seed, becoming darker toward the surface. Seed large."

38558. "No. 9. Large purplish, smooth-skinned type like No. 8 [S. P. I. No. 38557], but slightly smaller. Seed about the same size. Flesh not so thick."

38559. "No. 10. Fruit round, flat topped, purplish, outer surface rough. Shell thick. Flesh pale greenish near the seed, becoming darker toward the surface. Seed large. Fruit 8 cm. long by 9 cm. in diameter."

38560. "No. 11. Fruit flattest seen at market. Length, 7.5 cm.; diameter, 9 cm. Purplish in color; surface rough; shell thick. Flesh pale greenish near the seed, becoming darker toward the surface. Seed large."

38561. "No. 12. Fruit purplish, rough, nearest round, measuring 8 cm. each way. Shell thick. Flesh pale greenish near the seed, becoming darker toward the surface. Seed large."

38562. "No. 13. Fruit obovate, 10.5 cm. long by 9.5 cm. in diameter. Surface rough. Shell not so thick as others. Flesh thick, firm, pale greenish near the seed, becoming darker toward the surface. Seed small. This fruit would be very desirable if the shell were thicker."

38563. "No. 14. Fruit pear shaped, purplish, slightly longer than No. 38562. Shell thick (3 to 4 mm.). Flesh yellowish in color at the middle, but the greenish layer under the shell is quite deep. Proportion of flesh in this type is greater than in the round forms. Seed very small."

38564. "No. 15. Fruit pear shaped, purplish, about same size as No. 14 [S. P. I. No. 38563]; shell not so thick. Flesh yellowish at the middle, but the greenish layer under the shell is quite deep. Proportion of flesh in this type is greater than in the round forms. Seed very small."

38565. HYMENAEA COURBARIL L. Cæsalpiniaceæ. **Guapinol.**

"From the market of the city of Guatemala, June, 1914. Altitude, 5,000 feet. A handsome tree with curious compound leaves, consisting of only two leaflets, comparable to Bauhinia, but not united. Thick, woody shells of large pods contain a resin and are burned by the Indians like torches. Said also to be used in the manufacture of varnish. The seeds are packed in a thick layer of grayish powdery substance like licorice root, having a somewhat similar sweetish taste. Commonly eaten, and the pods are often sold in the markets."

Distribution.—From southern Mexico through Central America and the northern part of South America to Brazil.

38548 to 38567—Continued. (Quoted notes by Mr. O. F. Cook.)

38566. ACHRADELPHA VIRIDIS (Pittier) O. F. Cook. Sapotaceæ.
(*Calocarpum viride* Pittier.)

"Inferior variety from the market of the city of Guatemala."

See S. P. I. Nos. 38478 to 38481 for previous introductions and description.

38567. CHAYOTA EDULIS Jacq. Cucurbitaceæ. **Chayote.**
(*Sechium edule* Sw.)

"Thin-skinned variety of chayote from the market of the city of Guatemala."

38568. ERIOBOTRYA JAPONICA (Thunb.) Lindl. Malaceæ. **Loquat.**

From Algiers, Algeria. Presented by Dr. L. Trabut. Received June 20, 1914.

"*Tanaka* loquat. An excellent variety of fruit, with very firm flesh of a yellow color. Stands transportation for a period of one week. In Algeria the seeds give varieties superior to the original type, furnishing interesting varieties for the market." (*Trabut.*)

See S. P. I. No. 8890 for description of the original introduction of this variety from Japan into the United States.

38569 and 38570. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Victoria, Kamerun, German West Africa. Presented by the director of the Experiment Station. Received June 1, 1914. Quoted notes by the director.

"Seed from the Mora residency in the German lands near Lake Chad."

38569. "*Gabli nialgo.* Sown at the rainy season."

38570. "*Massaggoa adjagama.* For the manufacture of firkiboden this variety is preferred. It is planted after the rainy season."

38571 to 38576. RUBUS spp. Rosaceæ.

From Sibpur, near Calcutta, India. Presented by the Royal Botanic Gardens. Received June 15, 1914.

38571. RUBUS ALPESTRIS Blume.

Distribution.—A straggling shrub found on the temperate slopes of the Himalayas at an altitude of 7,000 to 18,000 feet and also in Java.

38572. RUBUS ANDERSONI Hook. f.

Distribution.—A bramble from altitudes of 7,000 to 8,000 feet in the Sikkim Himalayas.

38573. RUBUS CALYCINUS Wallich.

Distribution.—A creeping herbaceous perennial with simple reniform leaves and scarlet fruits, usually with but few fruitlets, found in India on the temperate slopes of the Khasi Hills at an altitude of 4,000 to 5,000 feet.

38574. RUBUS NIVEUS Thunb.

See S. P. I. Nos. 32453, 33344, and 34334 for previous introductions and description under the name *R. lasiocarpus.*

38571 to 38576—Continued.

"A large, spreading shrub; stems and branches glabrous, purple, pendulous, and often rooting at the tips; prickles small, usually few. Leaflets 5 to 11, ovate or ovate-lanceolate, lateral leaflets 1½ to 2½ inches, terminal one rather larger, often lobed; upper surface green, glabrous, lower white tomentose. Flowers dark pink, one-third to two-thirds of an inch in diameter, crowded in small, tomentose panicles. Calyx lobes tomentose inside and out, lanceolate, acute, longer than the petals. Drupelets black, hoary. Throughout the Himalayas, 4,000 to 10,000 feet." (*Collett, Flora Simlensis.*)

38575. RUBUS PEDUNCULOSUS Don.
(*Rubus niveus* Wall.)

Distribution.—A large rambling bush found on the temperate slopes of the Himalayas at an altitude of 6,000 to 10,000 feet, from Kashmir to Bhutan in northern India.

"A deciduous shrub, with very stout, erect, biennial stems, 1 to 1½ inches thick and in vigorous plants 4 to 6 yards high, covered with a soft, thick, velvety down, and sprinkled over with minute prickles. Leaves 6 to over 12 inches long, composed of 3 to 5 leaflets. Side leaflets about half the size of the terminal one, stalkless or nearly so, obliquely ovate, coarsely and doubly toothed, slightly hairy above, covered with a close white felt beneath, and with silvery hairs on the veins; terminal leaflets ovate to roundish heart shaped, long stalked, from 3 to 5 inches long and wide, in other respects the same as the side ones. Flowers white or pale pink, half an inch across, the petals shorter than the sepals. Fruits blue-black, small.

"Native of western and central China, whence it was introduced about 1901; the species has, however, been known to botanists as far back as 1825 from plants growing on the Himalayas. The Chinese plants are chiefly remarkable for their vigor; Mr. Wilson states that it is occasionally 20 feet high. It is the most robust of all *Rubi;* hardy in Britain, as may be seen by plants in the Kew collection." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, pp. 458–459.*)

38576. RUBUS PANICULATUS Smith.

See S. P. I. No. 23870 for previous introduction and description.

"A rambling climber; prickles few, very small; branches tomentose. Leaves simple, broadly ovate, 3 to 5 inches, usually cordate, long pointed, more or less lobed, upper surface nearly glabrous, lower white tomentose. Flowers white, in spreading, tomentose, terminal panicles. Calyx white tomentose; lobes narrowly pointed, longer than the petals. Drupelets black or dark purple. Temperate Himalayas, 3,000 to 7,000 feet." (*Collett, Flora Simlensis.*)

38577. AMYGDALUS PERSICA L. Amygdaleæ. **Peach.**
(*Prunus persica* Stokes.)

From Concepcion and Temuco, Chile. Presented by Mr. G. F. Arms, Concepcion, Chile. Received June 15, 1914.

"Seeds of a very late peach ripening in May, which would correspond to our November." (*W. F. Wight.*)

38578. PERSEA AMERICANA Miller. Lauraceæ. **Avocado.**

(*Persea gratissima* Gaertn. f.)

From Antigua, Guatemala. Collected by Mr. O. F. Cook, of the Bureau of Plant Industry. Received June 20, 1914.

"Seed of large round type (hard shelled), dark brown on outside, flesh cream colored. Called '*Antigua* No. 3.' Weight of fruit 2 pounds. June 7, 1914." (*Cook.*)

38579. TRIFOLIUM REPENS L. Fabaceæ. **Wild white clover.**

From Chester, England. Procured from Mr. James Hunter. Received April, 1914.

"An indigenous variety of white clover of Kentish origin which, owing to its success in experiments made by the Armstrong College at Cockle Park, has lately been much sought after. It is a very desirable variety of white clover, is very permanent, and superior to the ordinary white Dutch clover, inasmuch as one pound of seed of the wild variety seems to be as effective as two pounds of the Dutch. It is well suited for pasture." (*Hunter.*)

38580. ELEPHANTORRHIZA ELEPHANTINA (Burch.) Skeels. Mimosaceæ.

(*Elephantorrhiza burchellii* Benth.)

From Johannesburg, Transvaal, South Africa. Presented by Mr. J. Burtt Davy, botanist, Agricultural Supply Association. Received June 19, 1914.

See S. P. I. Nos. 25941 and 31309 for previous introductions.

"The plants of this genus can hardly be said to grow to shrub size; they are merely shrublets of annual growth, 1 to 2 feet high, from perennial roots. Leaves bipinnate, with 6 to 8 pairs of pinnæ, each many foliate, the leaflets half an inch long, obliquely linear. Racemes simple or branched, many flowered, 2 to 4 inches long, rising from the axils of the lower leaves; the flowers shortly pedicelled, one-sixth of an inch long, yellowish. Calyx 5-toothed. Petals 5, free. Stamens 10, ovary sessile, many ovuled. Pod 6 to 8 inches long, 1½ inches wide, thin, with a persistent margin from which the valves dehisce separately. *E. elephantina* is the only Cape species, being distinguished from the other, a Transvaal plant, by its linear pointed leaflets. The huge roots are rich in tannin, and were formerly used largely in colonial tanning, and are still preferred for the production of a certain color and quality not obtained with other tanning materials. Its cultivation has not been attempted, and the natural supply is insufficient to meet a large commercial demand." (*Sim, Forest Flora of Cape Colony.*)

38581 to 38583.

From Guatemala. Collected by Mr. O. F. Cook, of the Bureau of Plant Industry. Received June 20 and 23, 1914. Quoted notes by Mr. Cook.

38581. PERSEA AMERICANA Miller. Lauraceæ. **Avocado.**

(*Persea gratissima* Gaertn. f.)

From Antigua, Guatemala. Fruit from tree described under S. P. I. No. 38549.

38582. CHAMAEDOREA sp. Phœnicaceæ. **Pacaya palm.**

From San Antonio, Guatemala.

"June 5, 1914. Perhaps not the same species as the *pacaya* of Coban. A somewhat smaller palm, with the pinnæ closer together and somewhat broader."

38581 to 38583—Continued. (Quoted notes by Mr. O. F. Cook.)

38583. Persea americana Miller. Lauraceæ. **Avocado.**
(*Persea gratissima* Gaertn. f.)

From Antigua, Guatemala.

"Slightly pear shaped, hard shelled, flesh thick, firm. '*Antigua* No. 2.' Collected June 6, 1914, in the market at Antigua. Surface green, rough; shell thick; seed small."

38584 to 38586. Pennisetum glaucum (L.) R. Brown. Poaceæ.
(*Pennisetum typhoideum* Rich.) **Pearl millet.**

From Victoria, Kamerun, German West Africa. Presented by the director of the experiment station. Received June 1, 1914. Quoted notes by the director.

"Seed from the Mora residency in the German lands near Lake Chad. The resident writes: 'These species appear in all parts of the residency.' For the construction of firkiboden the *Massaggoa adjagama* [S. P. I. No. 38570] is preferred. The latter is only sowed after the rainy season, the others at the rainy season."

38584. "*Argum breke*. Planted during the rainy season."

38585. "*Argum matia*. Planted during the rainy season."

38586. "*Argum moro*. Sown during the rainy season."

38587. Persea americana Miller. Lauraceæ. **Avocado.**
(*Persea gratissima* Gaertn. f.)

From Antigua, Guatemala. Collected by Mr. O. F. Cook, of the Bureau of Plant Industry. Received June 26, 1914.

"*Antigua* No. 1. From the same tree as the bud wood [S. P. I. No. 38549]. June 6, 1914." (*Cook.*)

38588. Cocops rivalis O. F. Cook. Phœnicaceæ. **Palm.**

From Mayaguez, Porto Rico. Presented by Mr. W. E. Hess, Agricultural Experiment Station. Received June 16, 1914.

"Plants of the rarest and prettiest of Porto Rico palms. This species greatly resembles in habit and appearance *Geonoma gracilis*, but has more leaflets. At its type location it is growing on the bank of a stream, with the roots in the water, and in another location some 8 miles distant in an apparently dry limestone ravine; there are probably not more than a couple of dozen specimens left, and among this less than half a dozen fruiting trees; being of little value to the natives they are, when large enough, cut down for fence posts." (*Hess.*)

38589 to 38600.

From Cairo, Egypt. Presented by Mr. Thomas W. Brown, horticulturist, Egyptian Ministry of Agriculture, Gizeh, at the request of Prof. S. C. Mason, of the Bureau of Plant Industry. Received June 15, 1914. Quoted notes by Mr. Brown, except as otherwise indicated.

38589 to 38591. Zea mays L. Poaceæ. **Corn.**

38589. "*Amricani* (American)."

38589 to 38600—Continued. (Quoted notes by Mr. T. W. Brown.)

38590. "*Beladi* (Egyptian)."

"Beladi is the earliest variety. It is short, with a thin stem and a small cob and grain. It is a light cropper and ripens in less than three months. The seed is yellow or white and round. It is much grown near towns for human consumption." (*Foaden and Fletcher, Textbook of Egyptian Agriculture.*)

38591. "*Biltani.*"

38592. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

"*Isnawi.*"

38593. ZEA MAYS L. Poaceæ. **Corn.**

"*Nab el Gamal.*"

"*Neb el Gamel* is the variety probably most extensively grown. It is tall, thick stemmed, with a large cob and large, flat, translucent grains. The name is given from a fancied resemblance of the grain to the tooth of a camel. The yield is large, but it requires liberal manuring to produce full crops. It is late in ripening, occupying the land about four months." (*Foaden and Fletcher, Textbook of Egyptian Agriculture.*)

38594. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

"*Ewaiga.*"

38595 to 38598. ZEA MAYS L. Poaceæ. **Corn.**

38595. "*Fayoumi.*" **38596.** "*Manpalawi.*"

38597. "*Sinebra.*"

"Resembles *Neb el Gamel* somewhat in habit, but is not so vigorous. The cobs are smaller than *Neb el Gamel*, but larger than *Beladi*. The grain is translucent." (*Foaden and Fletcher, Textbook of Egyptian Agriculture.*)

38598. "*Hadari.*"

38599. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

"*Saifi beladi rafeh* (Thin Summer Egyptian)."

38600. ZEA MAYS L. Poaceæ. **Corn.**

"*Safra* (yellow)."

38601. CEREUS TRIANGULARIS Miller. Cactaceæ. **Pitaya.**

From the city of Guatemala, Guatemala. Collected by Mr. O. F. Cook, of the Bureau of Plant Industry. Received June 20, 1914.

"From the market, city of Guatemala. June, 1914. *Pitaya*, not *pitahaya*, as in Porto Rico. Outer surface of fruit old rose in color, including flesh and skin. Pulp of interior bright magenta, with more red than magenta (Ridgway No. 46), but not so much as rosolane purple, and somewhat lighter than either, but appearing darker from the black seeds. The flesh is not as dark as a purple beet, but of nearly the same color. Taste is very pleasant, very slightly acid, not unlike watermelon or like prickly pear fruits, but seeds delicate and thin walled, so that they are readily chewed, like seeds of the fig. The pulp does not seem sticky, but each seed is inclosed in a separate vesicle, purple like the pulp, but apparently much more sticky, that adheres readily to the finger or to any dry surface. This doubtless serves the purpose of attaching the seeds to tree trunks, where the plants grow as epiphytes, or to walls."

38602 to 38617.

From La Paz, Bolivia. Presented by Mr. Horace G. Knowles. Received June 19, 1914. Tubers of the following; quoted notes by Mr. Knowles.

38602 to 38615. Solanum tuberosum L. Solanaceæ. **Potato.**

38602 to 38604. "*Anco-choque* (*papa blanca de monda*, white potato without admixture with other variety)."

38602. A. **38603.** B. **38604.** C.

38605 to 38607. "*Chiar imilla* (*papa para caldo*, potato for soup)."

38605. A. **38606.** B. **38607.** C.

38608. "*Mamani* (*papa de monda*, potato of unmixed variety)."

38609. "*Phiñu* (*papa de mesa*, table potato)."

38610. Purple potato, round.

38611. Reddish potato, round.

38612. Dark purple potato, round.

38613. Dark purple, long.

38614. White potato, small.

38615. Black potato.

38616. Ullucus tuberosus Caldas. Basellaceæ. **Ulluco.**

"*Ullucu papa lisa* (smooth potato). Not a true potato, but *Ullucus tuberosus* of the family Basellaceæ."

38617. Solanum tuberosum L. Solanaceæ. **Potato.**

Purple, long bent.

38618 to 38632.

From Johannesburg, Transvaal, South Africa. Presented by Mr. J. Burtt Davy, botanist, Agricultural Supply Association. Received June 19, 1914. Quoted notes by Mr. Davy, except as otherwise indicated.

38618 to 38631. Triticum spp. Poaceæ. **Wheat.**

38618 to 38621. Triticum aestivum L.
(*Triticum vulgare* Vill.)

38618. "Standerton Winter wheat. No. 14082."

38619. "(No. 14084.) Potchefstroom White wheat. This resembles the beardless *Wit Wolkoren*, but the glumes are smooth and shiny. A few specimens can generally be found in any field of wheat, but I have seen only one pure stand, and that was on the farm of Mr. Dirk Nolte, Groot Marico. Three seasons ago Mr. Nolte picked out a few ears from among his other wheats and sowed them apart from the others, harvesting the seed by itself. Last season he sowed from the progeny about a bag of seed, and now has 30 to 40 bags, which will enable him to test its comparative yield and milling qualities. This variety is sometimes known as *Kaalkop*, but this name applies equally to other sorts." (*Transvaal Agricultural Journal, vol. 6, no. 22, p. 250, 1908.*)

38620. "(No. 14085.) Caledon Baard wheat."

38621. "(No. 14081.) Spring wheat."

38622. Triticum durum Desf.

"(No. 14087.) *Apulia* (durum)."

38623. Triticum aestivum L.
(*Triticum vulgare* Vill.)

"(No. 14088.) Grimbeek's *Kleinkoren*."

38618 to 38632—Contd. (Quoted notes by Mr. J. Burtt Davy.)

38624 and 38625. TRITICUM DURUM Desf.

38624. "(No. 14089.) *Theunissen* (durum). The *Theunissen* shows an interesting transition from durum to soft type, which our millers think may make it useful in time."

38625. "(No. 14090.) *Medeah* wheat."

38626 to 38631. TRITICUM AESTIVUM L.
(*Triticum vulgare* Vill.)

38626. "(No. 14091.) *Ecksteen* wheat. Resembles the *Wit Kleinkoren* [S. P. I. No. 38628], but is said to be some three weeks earlier in coming to maturity." (*Transvaal Agricultural Journal, vol. 6, no. 22, p. 250, 1908.*)

38627. "(No. 14093.) *Fourie* wheat."

38628. "(No. 14094.) *Wit Kleinkoren.* A short-stalked small-eared, white, bearded, glabrous wheat. By many farmers it is considered the best wheat of the country, though others prefer the softer grained, beardless *Wolkorens.* On many farms it was lost during the war and has not again been obtained, but some plants are to be found in almost every wheat field, and a few farmers have reestablished their stocks by selecting two or three and growing them separately; these farmers are now in a position to sell to their neighbors. The plants of *Kleinkoren* are low of stature as compared with the *Wolkorens,* hence the name *Kleinkoren;* the ears are smaller and average fewer grains than in the *Wolkorens,* but it is evident from the great variation in size under similar conditions that this fault could, to some extent at least, be improved away. *Kleinkoren* is said to require much manure, and it is not recommended for unmanured lands unless they are very rich. In the Crocodile Valley it is usually grown on lands manured with kraal manure and cropped with the tobacco during the previous summer." (*Transvaal Agricultural Journal, vol. 6, no. 22, p. 250, 1908.*)

38629. "(No. 14095.) *Rooi Wolkoren.* A beardless, tall-growing, heavy-headed variety, stooling well, i. e., producing a large number of stalks from a single root; the grains run from 75 to 109 per ear; the outer glumes are densely clothed with brownish red down, hence the name *Wolkoren.* This is the most widely grown variety in the Marico and Crocodile Valleys. and in the opinion of most farmers it divides honors with *Kleinkoren* as one of the two best wheats for these regions. For poor and unmanured lands it is considered the best wheat grown. The *wol* is considered objectionable, as it is said to felt the sieves of the machines; in damp seasons it hinders the drying out of the sheaves, as the moisture is retained longer than on the smooth ears of the *Kleinkorens.*" (*Transvaal Agricultural Journal, vol. 6, no. 22, p. 252, 1908.*)

38630. "(No. 14096.) *Gluyas Early* wheat."

38631. "(No. 14097.) *Australian Early* wheat."

38632. ERYTHRINA ZEYHERI Harvey. Fabaceæ.

"A very ornamental hardy herbaceous perennial. Flowers scarlet."

38633. Ferula sp. Apiaceæ. Asafetida.

From Teheran, Persia. Presented by Mr. Craig W. Wadsworth, American consul general. Received June 19, 1914.

"Ferula, which produces the asafetida of commerce, growing in the neighborhood of Meshed and Kerman. I wrote to the former place, but was unable to obtain the seed; however, one of our missionaries at Meshed, with the assistance of the British consul, succeeded in obtaining these roots." (*Wadsworth.*)

38634 to 38637.

From Guayaquil, Ecuador. Presented by Mr. Frederic W. Goding, American consul general. Received June 20, 1914. Quoted notes by Mr. Goding.

38634. Achradelpha mammosa (L.) Cook. Sapotaceæ. **Sapote.**
(*Lucuma mammosa* Gaertn. f.)

For previous introductions and description, see S. P. I. Nos. 35673 and 37813.

38635. Annona squamosa L. Annonaceæ. **Sugar-apple.**

"The fruit is the size of an orange, with pale-green skin, the markings of which resemble dressed alligator hide. Within, the appearance and taste resemble the other species. It grows on a bush found in the low coastal districts of Ecuador."

38636. Cyphomandra betacea (Cav.) Sendt. Solanaceæ. **Tree tomato.**

"Seeds of a fruit locally called '*Tomate de arbol,*' found growing in the lowlands, but will stand a certain degree of frost. This tree tomato grows on a tree of good proportions, about 10 feet high. The fruit, ovoid in shape, about the size of a small peach, is of a bright reddish color; the skin, the interior divisions of them, the seeds, and the taste are almost identical with those of the ordinary tomato."

38637. Prunus salicifolia H. B. K. Amygdalaceæ. **Wild cherry.**

"Seeds of a fruit locally called *capulies*, found growing in the lowlands, but will stand a certain degree of frost. This wild cherry grows on a large tree from which very hard lumber is made. It is said to be proof against insect borers and is used extensively where a strong and durable material is required. The fruit is pleasant to the taste."

38638 to 38640. Persea americana Miller. Lauraceæ.
(*Persea gratissima* Gaertn. f.) **Avocado.**

From Antigua, Guatemala. Collected by Mr. O. F. Cook, of the Bureau of Plant Industry. Received June 19, 1914.

From the same tree as the bud wood (S. P. I. No. 38549).

38638. No. 1.

38639. No. 2.

38640. No. 3.

38641 and 38642. Passiflora spp. Passifloraceæ. Passion fruit.

From Bogota, Colombia. Presented by Capt. H. R. Lemly, U. S. Army, retired. Received June 24, 1914. Quoted notes by Capt. Lemly.

38641 and 38642—Contd. (Quoted notes by Capt. H. R. Lemly.)

38641. PASSIFLORA MALIFORMIS L.

"*Curuba.* A vine, bearing fruit, yellow when ripe, saffron-colored pulp. To be eaten with cream and sugar.

"This *Curuba* flourishes at this altitude, 9,000 feet, and a constant temperature of about 60° F. in the shade. It ought to grow in the United States."

38642. PASSIFLORA LIGULARIS Juss.

"*Granadilla.* Fruit of the passion vine; greenish yellow when ripe."

38643. MEDICAGO SATIVA L. Fabaceæ. **Alfalfa.**

From Tripoli, Africa. Presented by Dr. F. Franceschi, Bogliasco, Genoa, Italy. Received June 25, 1914.

"Var. *khobezy.* This variety grows larger and yields more foliage than the ordinary type. It appears to be very common and the seed costs twice as much. Experiments made at the Agricultural School of Portici have shown that it is rather tender and will be fit only for Florida and southern California, perhaps also for breeding purposes." (*Franceschi.*)

38644. PLUKENETIA CONOPHORA Muell. Arg. Euphorbiaceæ.

From Victoria, Kamerun, German West Africa. Presented by the experiment station. Received June 27, 1914.

Another oil fruit which springs from the creeping plant which is cultivated everywhere in the Ossidinge district in the fields among maize and can be obtained in great quantity was sent in to us also by Dr. Mansfield, district magistrate. Prof. Gilg determined the fruit as *Plukenetia conophora.* The thin-shelled nut, about the size of a walnut, contains a firm, round, hard, oily kernel, loose in the shell. The kernel as well as the oil contains no harmful substance, as various experiments with animals show; it is used by the natives as a cooking oil. It belongs also, like the linseed oil (to which it is very similar in other ways), to the drying oils. It will be very valuable as a substitute for linseed oil, which is rising in price from year to year and which is a raw product for linoleum and varnish making. The kernels without the shells weigh 4 to 5 grams. The native name of the plant is *Ngart.* The fatty residue contains 7.3 grams nitrogen—45.6 per cent protein. The investigation of the oil gives the following data:

Specification.	Ngart oil.	Linseed oils.
Oil content of the kernels, per cent	53.8	....
Specific weight of the oil at 17.5° C	—0.934	0.930 to 0.934
Congealing point of oil °C	—33	—16 to —20
Iodin number of the oil	177.3	170 to 202
Iodin number of the free fatty acids	167.4	190 to 210
Saponification number	192	188 to 195
Refraction exponent at 17.5° C	—1.4830	....

(Adapted from *Krause and Diesselhorst, Tropenpflanzer, vol. 13, p. 282, 1909.*)

38645. OLEA FOVEOLATA E. Meyer. Oleaceæ. Wild olive.

From Cape Town, Union of South Africa. Presented by Mr. C. W. Mally, entomologist, Department of Agriculture, at the request of Mr. C. P. Lounsbury, Division of Entomology, Pretoria, Union of South Africa. Received June 27, 1914.

"Collected in the neighborhood of East London, Cape Province." (*Mally.*)

See S. P. I. Nos. 25846 and 33783 for previous introductions.

"A tree 30 to 40 feet in height, 9 to 15 inches stem diameter, usually found in what is or has been dense forest, and with a clean, straight stem so similar in marking to black ironwood (*O. laurifolia*) that expert woodcutters seldom differentiate between the two, but if they do it is considered of little importance which is used, the value being considered about equal, except that its size makes this more suitable for disselbooms (poles) than *O. laurifolia*, while for heavy timber the latter is the better. Leaves elliptical or oblong, varying a good deal in size and form, sometimes oval, usually about 2 inches long, three-fourths of an inch to 1½ inches wide, bluntly pointed, entire, coriaceous, glabrous glossy above, pale below, and with more or less hairy pits in the axils of the veins on the lower surface. Panicles axillary, much shorter than the leaves, few flowered; flowers one-fourth of an inch across, white; petals hooded, fruit half an inch long, elliptical, purple, nearly dry, with a large 1-seeded stone. Common in all the eastern and Natal forests, seldom so large as *O. laurifolia*, and not more sound. Fourcade gives its properties as 'Weight, 63 pounds per cubic foot; relative hardness, 7; coefficient of elasticity, 1,024 tons; modulus of rupture, 6.22 tons; crushing load, 4.5 tons per square inch.'" (*Sim, Forest Flora of Cape Colony*).

38646. RUBUS BOGOTENSIS H. B. K. Rosaceæ. Blackberry.

From Fusagasuga, Colombia. Presented by Mr. F. L. Rockwood, clerk of the American Legation, Bogota, Colombia. Received June 25, 1914.

"Seeds of a large blackberry from Fusagasuga." (*Rockwood.*)

38647. MERREMIA HEDERACEA (Burm.) Hallier. Convolvulaceæ.
(*Convolvulus flavus* Willd.)

From the island of Guam. Presented by Mr. J. B. Thompson, Agricultural Experiment Station, through Mr. C. V. Piper, of the Bureau of Plant Industry. Received June 29, 1914.

"A twining vine of the convolvulus family which is found to be an excellent forage plant here. It is very common here and springs up as volunteer growth on newly cleared and fallow fields at any time of the year providing there is sufficient moisture to germinate the seed. We have a tract of unseeded ground at the station with an area of approximately 2 acres, a portion of which is covered with this growth, and during the past three months three mature cows have been pasturing upon this tract exclusively and have made good gains every month, and this during a season when growth of most forage plants is backward and cattle generally have a tendency to fall in flesh. The tract would probably furnish plenty of pasture for two or three head of animals in addition to the three that are now maintained upon it. I am not aware of any other forage plant here for which stock in general seem to have an equal relish. Animals at the station showing a loss of appetite, during periods of fever, have frequently refused all else than this and the leaves of the bread-

38647—Continued.

fruit tree, and this little vine is generally the last nourishment to be declined. I wish, however, to caution in regard to the handling of this seed, as the tendency which this plant shows to reseed the soil and perpetuate itself for year after year on a given tract of land might make it a pest and a very troublesome one. Here it sometimes appears in cornfields after cultivation is discontinued and acts somewhat similar to the old related morning-glory pest of Kansas corn fields." (*Thompson.*)

Distribution.—A perennial twining vine with yellow flowers, found in tropical Africa and Asia, and eastward through the islands of the Indian Ocean to the Philippines.

38648 and 38649.

From St. Croix, Danish West Indies. Presented by Dr. Longfield Smith, director, Agricultural Experiment Station. Received June 27, 1914. Quoted notes by Dr. Smith, except as otherwise indicated.

38648. CARICA PAPAYA L. Papayaceæ. **Papaya.**

"Seeds of a very fine papaya."

38649. TABEBUIA PENTAPHYLLA (L.) Hemsley. Bignoniaceæ.

"A very fine flowering tree. The grandparent of these seeds is growing in Dominica, and when in flower presents the most handsome appearance."

"A tree of the forest, glabrous, with opposite compound, rigid leaves; leaflets petiolulate, elliptical, five and four; calyx campanulate, slightly bilabiate; corolla white or rose, glabrous, puberulent on the inside, with five slightly unequal lobes; four didynamous stamens; ovary with two cells; capsule linear, elongated, subcylindric, with 3-keeled valves. This tree, very widely distributed, gives a beautiful wood for cabinetwork and is much sought after for wheelwright's work. The bark is considered a febrifuge." (*Lanessan, Plantes Utiles des Colonies Françaises.*)

38650 to 38658.

From Manila, P. I. Presented by the Manila City Nursery, through Mr. Henry H. Boyle, assistant horticulturist, Bureau of Agriculture, Manila. Received June 26, 1914.

38650. ADENANTHERA PAVONINA L. Mimosaceæ. **Coral-bean tree.**

See S. P. I. Nos. 31585 (under the name *Ormosia calavensis*), 36866, and 38117 for previous introductions and description.

"A large deciduous tree met with in the moist forests of Bengal, Assam, Bombay, Madras, and Burma, and readily propagated by seed. A gum is said to be afforded by it. The wood is powdered and used as a dye and is the red paste with which the Brahmans color their foreheads after bathing. Taylor says a decoction of both the seeds and wood is used in pulmonary affections and as an external application in chronic ophthalmia. The timber is much employed for house building and cabinetmaking. The seeds, which are sometimes eaten, are bright and therefore used for rosaries and as weights (about 4 grains). Ground to a paste with borax they form a useful cement." (*Watt, Commercial Products of India.*)

38651. BAUHINIA TOMENTOSA L. Cæsalpiniaceæ. **St. Thomas tree.**

See S. P. I. No. 18685 for previous introduction.

38650 to 38658—Continued.

Distribution.—A shrub with large showy yellow flowers in clusters found in tropical Africa and Asia and the islands of the Indian Ocean.

38652. CANANGIUM ODORATUM (Lam.) Baill. Annonaceæ.
(*Cananga odorata* Lam.) **Ylang-ylang.**

See S. P. I. Nos. 20908 and 35243 for previous introductions and description.

"A tree bearing a profusion of greenish yellow fragrant flowers with long, fringelike petals, from which the perfume *ilang-ilang* [ylang-ylang] is made. Leaves alternate, simple, entire, ovate oblong, finely acuminate, puberulous beneath; sepals 3; petals 6, in two series, narrowly linear; stamens many, linear, borne at the base of the ovary, the connective produced into a lanceolate, acute process; ovaries many; style oblong; ripe carpels about 12, ovoid or obovoid, black, 6 to 12 seeded.

"Bark of tree smooth, ashy; trunk straight normally, but in Guam often twisted out of shape by hurricanes. Its wood is soft and white and not very durable, but in Samoa the natives make small canoes of it, and the Malayans hollow out the trunks into drums or tom-toms. In Guam straight trunks of sufficient size for canoes are never found.

"This tree is found in Java, the Philippines, and in many islands of the Pacific. It is widely cultivated in the Tropics. Its introduction into Guam is comparatively recent; but the fruit-eating pigeons are spreading it gradually over the island. The natives sometimes use its flowers to perfume coconut oil. In Samoa it is very highly esteemed. Its fringelike flowers are there strung into wreaths and garlands by the natives, together with the drupes of Pandanus and the scarlet fruit of Capsicum.

"Ilang-ilang trees may be readily propagated either by cuttings or seeds. These should be planted in orchards or groves 8 meters apart. They thrive well on most tropical islands and in countries with moist, warm climates. About the third year the flowers appear. They bloom continuously, so that flowers and fruit may be always found on the same tree.

"From the flowers a pleasantly scented volatile oil is derived, known in commerce as the oil of ilang-ilang. In the Philippines and the East Indies this is sometimes adulterated with an oil extracted from the flowers of *Michelia champaca*. Ilang-ilang oil is obtained by steam distillation. In this process steam is generated in a small boiler and passed into a closed vessel containing the flowers. The mixed water and oil vapor as it leaves this vessel is condensed, and the oil separated from the water by decantation. In the Philippines, German distillers have obtained it in the ratio of about 25 grams from 5 kilometers of flowers (0.5 per cent). It finds a ready market in Paris, Nice, and Grasse, and is used also by perfumers in London, Leipzig, Berlin, and Frankfort. The best quality of oil is perfectly clear and very fragrant. The second quality is yellowish and turbid. A perfume is also derived from the blossoms by the method known as enfleurage, as with jasmines and other fragrant flowers. By this process the fragrant oil is absorbed by refined fats, butter, or oil spread over trays, on the surfaces of which the flowers are sprinkled. These are changed at frequent intervals and the fat 'worked' so as to present a fresh surface each time the new flowers are laid upon it. Finally it is scraped off the tray, melted, strained, and poured into jars in the form of a pomade. When oil is used in this

38650 to 38658—Continued.

process, layers of cotton are steeped in it, spread upon trays, and the flowers sprinkled over the surface, after which the oil is pressed out. Care should be taken to use fresh oil. Coconut oil is liable to become rancid very soon.

"The method used by the natives to extract the perfume is very simple. The flowers are put into coconut oil and allowed to remain there a short time, after which they are removed and replaced by fresh ones. The process is hastened by heating the oil. To avoid excessive heat the vessel used for the process is partly filled with water and the oil poured upon it. This prevents the temperature rising above that of boiling water, and the lower specific gravity of the oil keeps it separate from the water. The Macassar oil of commerce 'is coconut oil in which the flowers of *Cananga odorata* and *Michelia champaca* have been digested.' (*Spon's Encyclopedia, vol. 2, p. 1422. 1882.*) Ilang-ilang oil is becoming an important article of export from the Philippines. From the commercial monthly summary, published by the Bureau of Insular Affairs (May, 1904), it appears that the amount exported is steadily increasing." (*Safford, Useful Plants of Guam.*)

38653. DELONIX REGIA (Boj.) Rafin. Cæsalpiniaceæ.
(*Poinciana regia* Boj.) **Royal poinciana.**

"A rapid-growing tree with broad top and wide-spreading branches. Leaves gracefully bipinnate, 30 to 60 cm. long, with 10 to 20 pairs of pinnæ, each pinna with numerous small oval leaflets; flowers large, in large racemes, bright scarlet, the upper petal striped with yellow; calyx segments valvate; petals 5, clawed, obovate; stamens 10, free, exserted; pod flat, straplike, 15 to 60 cm. long. This handsome ornamental tree is a native of Madagascar. It has become widely spread, and is now found in all tropical countries. It yields a yellowish or reddish brown mucilaginous gum, containing oxalate of lime." (*Safford, Useful Plants of Guam.*)

38654. SAMANEA SAMAN (Jacq.) Merrill. Mimosaceæ. **Saman tree.**
(*Pithecolobium saman* Benth.)

"A handsome tree with spreading branches and bipinnate leaves. Pinnæ 2 to 6 pairs; leaflets 2 to 7 pairs, obliquely ovate or obovate oblong; corolla yellowish; stamens light crimson; flowers growing in globose clusters like crimson pompoms. Its pods contain a sweetish pulp and are relished by cattle and horses. In Honolulu it is one of the favorite shade trees." (*Safford, Useful Plants of Guam.*)

38655. BARYXYLUM INERME (Roxb.) Pierre. Cæsalpiniaceæ.
(*Peltophorum ferrugineum* Benth.)

"A medium-sized tree with dense rounded crowns, compound pinnate leaves and small leaflets. Flowers large, yellow, in large, terminal, erect, many flowered panicles, the pods flat, rather broad, with a narrow wing down one side. One of the finest shade trees in Manila, and quite frequently cultivated. Thrives well, gives a good shade, is not deciduous, and has abundant and beautiful flowers." (*Catalogue, Manila City Nursery.*)

38656. AGATI GRANDIFLORA (L.) Desv. Fabaceæ.
(*Sesbania grandiflora* Poir.)

Var. *coccinea.*

38650 to 38658—Continued.

The species is described (*Catalogue, Manila City Nursery*) as "a medium-sized or rather small tree, with compound, pinnate leaves with small oblong leaflets, and very large white flowers, 2½ to 5 inches long. The pods are long, slender, and pendulous. A desirable ornamental; not good for shade, however, as the top is rather thin. The large white flowers are used by the natives for food." The variety differs in having red flowers.

38657. Lactuca sativa L. Cichoriaceæ. **Lettuce.**

"I have grown many varieties of lettuce and worked with a number of hybrids produced in the department. If my memory serves me well there is not one variety or one hybrid which will equal this lettuce when grown properly. It strongly resembles a cross between *Grand Rapids* and *Golden Queen*, a semiopen and semiheading variety. During its young stages of growth it has the brightest golden color of any lettuce of which I know. This character alone would make it especially valuable for garnishing dishes. Aside from this it is a very good table lettuce. This was obtained from Macao, a Portuguese possession off the coast of China. Sent to the Manila Bureau of Agriculture by Mr. Soares, of Hongkong, China." (*Boyle.*)

38658. Chrysanthemum sp. Asteraceæ. **Chrysanthemum.**

"A vegetable which is greatly used by the Chinese under the name of *Chung ow*. This vegetable is used by the Chinese in the same manner that we use kale and spinach. It is a very good substitute for both." (*Boyle.*)

8659 to 38663. Solanum tuberosum L. Solanaceæ. Potato.

From Warsaw, Russia. Presented by Mr. K. Drewitz, at the request of Mr. Edouard de Kostecki, director, Polish Agricultural Experiment Station. Received June 27, 1914.

Tubers of the following:

38659. ***Warszawa.***

38660. ***Twitez.***

38661. ***Wohltmann.***

38662. ***Bohun.***

38663. ***Clio.***

3664 and 38665.

From Burma, India. Presented by Mr. Henry Ware Hale, Savannah, Ga. Received June 26, 1914.

38664. Belou marmelos (L.) Lyons. Rutaceæ. **Bael.**
(*Aegle marmelos* Correa.)

For previous introductions and descriptions, see S. P. I. Nos. 24450 and 33094.

"The bael fruit of India. A handsome tree, native to northern India, but widely cultivated throughout the Peninsula as well as in Ceylon, Burma, Siam, and Indo-China. The trifoliolate leaves, borne on wingless petioles, are thin in texture, probably owing to the fact that they are deciduous. Although not so hardy as the deciduous trifoliate orange of China and Japan, the bael fruit tree is said to endure a considerable degree of cold (20° F. or lower) in the drier parts of northwestern

38664 and 38665—Continued.

India. The fruit is greenish yellow, globular, or nearly so, varying from 2 to 6 (usually 4 to 5) inches in diameter. The fruit of the wild tree is considerably smaller than that of the cultivated form. The hard shell, one-eighth of an inch thick, is filled with the pale-orange, aromatic pulp, in which occur 10 to 15 long, narrow cells containing the seeds embedded in transparent, tenacious gum. These cells correspond to the segments of an orange, while the pulp is made up of the pith and the greatly thickened fleshy membranes separating the cells. The ripe fruit is much esteemed by the Hindus, many of whom consider it the best of the citrus fruits; the European residents in India often become very fond of it. Watt (*Dictionary of Economic Products of India, 1: 123*) says: 'The fruit, when ripe, is sweetish, wholesome, nutritious, and very palatable and much esteemed and eaten by all classes. The ripe fruit, diluted with water, forms, with the addition of a small quantity of tamarind and sugar, a delicious and cooling drink.' The famous botanist, Roxburgh (*Flora Indica, 2: 580*), says: 'The fruit is nutritious, warm, cathartic, in taste delicious, in fragrance exquisite.' On the other hand, W. R. Mustoe, superintendent, Government Archæological Gardens, Lahore, India, writes: 'The fruit is greatly prized for eating by the natives, but can scarcely be looked upon as palatable to the white man, except as a sherbet.' Sherbet is made from the mashed pulp, which is diluted with a little water and then strained into milk or soda water and sugared to taste. Sometimes a little tamarind is added to give a subacid flavor. All Indian medical authorities agree that the bael fruit has a most salutary influence on the digestive system. The ripe fruit is mildly laxative and is a good simple remedy for dyspepsia. The unripe fruit is a specific of the highest value for dysentery, but so mild that it can be given to children without danger. The bael fruit tree is widely cultivated in India and is found in nearly every temple garden. It is dedicated to Siva, whose worship can not be completed without its leaves. This promising fruit tree is now being tested at several points in the warmer parts of the United States." (*W. T. Swingle. In Bailey, Standard Cyclopedia of Horticulture.*)

38665. CACARA EROSA (L.) Kuntze. Fabaceæ. **Yam bean.**
(*Pachyrhizus angulatus* Rich.)

"Seeds of an edible tuber bean. The tubers are usually the size of an orange. Flesh white, somewhat like a turnip. It is usually eaten raw, though I believe the Chinese sometimes cook it with pork and the Burmese with their curries. This vine requires a long season. The tuber is cooling and refreshing, being as juicy as an artichoke." (*Hale.*)

INDEX OF COMMON AND SCIENTIFIC NAMES.

Abelmoschus esculentus, 37806.
Abfu, *Pouteria caimito*, 37929.
Abroma augusta, 38100.
Acacia verek, 38524.
Achradelpha mammosa, 37813, 38634.
  viridis, 38478–38481, 38566.
Adenanthera pavonina, 38117, 38650.
Adzuki bean, *Phaseolus angularis*, 38442, 38443, 38446.
Aegle marmelos. See *Belou marmelos*.
Agati grandiflora, 38656.
Aikoku, *Oryza sativa*, 38222.
Aksaya, *Soja max*, 38214.
Alamoen, *Citrus grandis*, 37804.
Albizzia sp., 38285.
Alder, *Alnus nepalensis*, 38290.
Aleurites sp., 37980.
  fordii, 38527.
  moluccana, 37926.
Alfalfa, *Medicago sativa:*
  (China), 38464.
  (France), 37941, 37942, 38138.
  Khobezy, 38643.
  Mu hsü, 38464.
  Provence, 37941, 37942.
  (Russia), 38208.
  (Tripoli), 38643.
  (Turkey), 38523.
Alnus nepalensis, 38290.
Alyxia bracteolosa. See *Gynopogon bracteolosa*.
Amburana claudii, 37906.
Amendoim bean, *Phaseolus vulgaris*, 37890.
Amora berry, *Rubus rosaefolius*, 37885.
Amores casadas, *Sesban macrocarpum*, 37931.
Amygdalus persica, 38094, 38095, 38178, 38272–38274, 38416–38418, 38469, 38577.
  persica platycarpa, 38275, 38276, 38470.
  pedunculata, 38408.
Anacardium excelsum, 38209.
  occidentale, 38393.
  rhinocarpus. See *Anacardium excelsum*.
Anacolosa luzoniensis, 38395.
Anco-choque, *Solanum tuberosum*, 38602–38604.
Andropogon leucostachyus, 37993.
  rufus. See *Cymbopogon rufus*.
  sorghum effusus. See *Holcus sorghum effusus*.
Angola grass, *Panicum barbinode*, 37849.
Annona cherimola, 38526.
  salzmanni, 37933.
  senegalensis, 38525.
  spinescens, 37911.
  squamosa, 37818, 37908, 38635.
Anona, *Annona* spp.
  (Brazil), 37908, 37911, 37933.
  (Ecuador), 37818, 38635.
  (South Africa), 38525.
Anthephora elegans. See *Anthephora hermaphrodita*.
  hermaphrodita, 38003, 38008.
Antigonon guatimalense, 38397.
Aoniūdō, *Soja max*, 38220.
Aotsurunoko, *Soja max*, 38217.
Apple, *Malus* spp.:
  (China), 38279, 38280.
  crab, 38231.
  Malus sylvestris, 37683.
  Ta p'in kuo, 38279.
  Ta sha kuo, 38280.
  Tetovo, 37683.
  Tetovsky, 37683.
  (Turkey), 37683.
Apricot, *Prunus armeniaca*, 37744, 38230, 38281.
  (China), 38230, 38281.
  Dakhleh, 37744.
  (Egypt), 37744.
  Ta shui hsing, 38281.
Apricot plum, *Prunus* 38282.
  Hsing mei, 38282.
Apuwai ulaula, *Colocasia esculenta*, 37693.
Araça cagão, *Psidium* sp., 38342.
  mirim, *Psidium* sp., 37922.
Aralia quinquefolia. See *Panax quinquefolium*.

Araticum. See *Annona* spp. and *Rollinia* spp.
Arbor vitæ, *Thuja orientalis*, 37[illegible].
Argum breke, *Pennisetum glaucum*, 38584.
matia, *Pennisetum glaucum*, 38585.
moro, *Pennisetum glaucum*, 38586.
Aristida sanctae luciae, 37986.
Aristoclesia esculenta. See under 37802.
Aristolochia galeata, 37893.
Arrhenatherum elatius, 38036.
Artocarpus odoratissima, 38377.
Asafetida, *Ferula* sp., 38633.
Asi, *Santalum* sp., 38128.
Asparagus asparagoides, 38143.
cooperi, 38142.
medeoloides. See *Asparagus asparagoides*.
tenuifolius, 37713, 37940.
Atalantia sp., 38385.
buxifolia. See *Severinia buxifolia*.
ceylanica, 38297.
glauca. See *Eremocitrus glauca*.
monophylla, 38511.
Attalea spp., 37899, 37910.
funifera, 37868.
Ava, *Piper methysticum*, 38291.
Avena sativa, 37708.
Avocado, *Persea americana*:
Antigua No. 1, 38549, 38587, 38638.
No. 2, 38583, 38639.
No. 3, 38578, 38640.
Dieseldorff, 38401, 38402, 38477.
(Guatemala), 38400–38402, 38477, 38549–38564, 38578, 38581, 38583, 38587, 38638–38640.
Axonopus sp., 37995.
chrysoblepharis, 37987.
Azeitona, *Syzygium* sp., 37932.

Babricou bean, *Canavali* sp., 37722.
Backhousia bancroftii, 38096.
Bacopariu, *Mimusops coriacea*, 37928.
Bactris caryotaefolia, 37927.
Bael, *Belou marmelos*, 38299, 38389, 38664.
Bahai, *Ormosia calavensis*, 37704.
Balerie bodérie, *Holcus sorghum*, 37957.
Bakopary, *Rheedia brasiliensis*, 37802.
Bakury, *Aristoclesia esculenta*. See under 37802.
Balincolong, *Citrus hystrix*, 38293.
Bamboo, *Phyllostachys* sp., 37679.
(China), 37679.
Tong po chu, 37679.
Banaba, *Lagerstroemia speciosa*, 38294.
Banku paddy, *Oryza sativa*, 38367.
Barberry. See *Berberis* spp.
Barley, *Hordeum* spp.:
Adliker, 38060.
Argovia, 38058.
black, 38485.
(Bolivia), 38490.
cruciferous, 37707.
(Denmark), 37706, 37707.
four-rowed, 38057, 38058, 38061.
(Peru), 37968.
Prentice, 37706.
(Russia), 38302–38326, 38535, 38536.
six-rowed, 37707, 37968, 38062, 38536.
(Switzerland), 38057–38062.
(Syria), 38484, 38485.
two-rowed, 37706, 38059, 38060, 38535.
Tystofte korsbyg, 37707.
white, 38484.
Baryxylum dubium, 37901.
inerme, 38655.
Batuan, *Garcinia binucao*, 38392.
Bauhinia tomentosa, 38651.
Baúno, *Mangifera verticillata*, 38394.
Bean, adzuki, *Phaseolus angularis*, 38442, 38443, 38446.
(Algeria), 38045.
Amendoim, 37890.
Babricou, *Canavali* sp., 37722.
(Brazil), 37888, 37890, 37891.
broad, *Vicia faba*, 38045.
(China), 38441–38446.
common, *Phaseolus vulgaris*, 378 37890, 37891, 38444, 38445.
horse, *Vicia faba*, 38437.
Hsiao ts'an tou, 38437.
Hua yün tou, 38445.
Hung hsiao tou, 38446.
yün tou, 38444.
Pai hsiao tou, 38442.
peanut, 37890.
sprout, *Phaseolus calcaratus*, 38441
sulphur, 37888.
Tsa hsiao tou, 38443.
Wan tou, 38441.
winged, *Botor tetragonoloba*, 37
Belar, *Casuarina glauca*, 38147.

Belou marmelos, 38299, 38389, 38664.
Berberis coryi, 37976.
  globosa, 38144.
  guimpeli, 38145.
  stapfiana, 37975.
Bergamot orange, *Citrus bergamia*, 37779, 37795.
Bermuda grass, *Capriola dactylon*, 38035.
Berseem, *Trifolium alexandrinum*, 38139.
Bertholletia nobilis, 38191.
Betula luminifera, 38146.
  utilis, 38287.
Biasong, *Citrus hystrix*, 38293.
Billbergia variegata. See *Neoglaziovia variegata*.
Birch. See *Betula* spp.
Birthwort, *Aristolochia galeata*, 37893.
Bitter orange, *Citrus aurantium*, 37775, 38503, 38506–38508.
Blackberry, *Rubus* spp., 38054, 38055, 38114, 38115, 38646.
  (Colombia), 38054, 38055, 38114, 38115, 38646.
  El Moral de Castile, 38055.
Bombycodendron vidalianum, 38486.
Botor tetragonoloba, 37699.
Box, *Buxus sempervirens*, 38338.
  Huang ya, 38338.
Brassica oleracea caulo-rapa × *viridis*, 37807.
Brazil nut, *Bertholletia nobilis*, 38191.
Broad bean, *Vicia faba*, 38045, 38437.
Bromelia sp., 37898.
Bunchosia sp., 37895.
Burity palm, *Mauritia vinifera*, 37819, 37903.
Bush cherry:
  Pai ying t'ao, 37680.
  Prunus prostrata, 37687, 38425.
  Prunus tomentosa, 37680.
Buxus sempervirens, 38338.
Byrsonima crassifolia, 37728.

Caatingueiro grass. *Chloris elegans*, 38023.
Cabuyao. *Citrus hystrix*, 38293.
Cacara erosa, 38665.
Cactus, *Cereus jamacaru*, 37823.
  cochineal, *Opuntia* sp., 37746.
  Mandacaru de boi, 37823.
Caesalpinia sp., 37874.
Café do matto, *Bunchosia* sp., 37895.
Calocarpum viride. See *Achradelpha viridis*.
Calophyllum inophyllum, 38118.
Calopogonium orthocarpum, 38329.
Cambucá, *Myrciaria edulis*, 37829.
Cambuhy da India, *Eugenia campestris*, 37830.
Campomanesia fenzliana, 37834.
Campylotropis macrocarpa, 38156.
Cana fistula, *Baryxylum dubium*, 37901.
Cañagua, *Chenopodium* sp., 37969.
Cananga odorata. See *Canangium odoratum*.
Canangium odoratum, 38652.
Canarium ovatum, 37685, 38372, 38398.
Canavali sp., 37722.
Candlenut, *Aleurites moluccana*, 37926.
Canna indica, 38119.
Cannabis sativa, 37721, 38466.
Canquib palm, *Chamaedorea* sp., 38515.
Cantaloupe, *Cucumis melo*, 38519.
Capim amargo, *Chaetochloa setosa*, 38004.
  assú, *Panicum maximum*, 38024, 38030.
  barba de bode, *Eragrostis ciliaris*, 38010.
  bengu, *Panicum barbinode*, 37998.
  caatingueiro, *Chloris elegans*, 38023.
  carapicho de ovelho, *Nazia aliena*, 38009.
  colonia, *Panicum maximum*, 37997.
  de Angola, *Panicum barbinode*, 37849.
  de boi, *Holcus sorghum*, 38005.
  de passarinho, *Panicum hirticaule*, 38014, 38018.
  espelta, *Anthephora hermaphrodita*, 38008.
  favorita, *Tricholaena rosea*, 38021.
  fino, *Eragrostis articulata*, 38012.
  gordura, *Melinis minutiflora*, 37983.
  gordura roxo, *Melinis minutiflora*, 38038.
  guiné, *Panicum* spp., 37984, 38024, 38030, 38039.
  jaragua, *Cymbopogon rufus*, 38037.

Capim pe de gallinha, *Dactyloctenium aegyptium*, 38017.
  pe de periquito, *Dactyloctenium aegyptium*, 38017.
Capriola dactylon, 38035.
Capsicum sp., 37912.
  frutescens, 38121.
Capulies, *Prunus salicifolia*, 38637.
Carapicho, *Meibomia* sp., 38331.
Carica papaya, 38292, 38648.
Carissa ovata, 38376.
Carnahuba, *Copernicia cerifera*, 37866.
Carnauba palm, *Copernicia cerifera*, 37866.
Caroá, *Neoglaziovia variegata*, 37794.
Caryocar brasiliensis, 37904.
Cashew, *Anacardium occidentale*, 38393.
Cassia sp., 38120.
  occidentalis, 38123.
Castanea mollissima, 37799, 37800, 38182.
Castilla nicoyensis, 38188.
Castor bean, *Ricinus communis*, 37914.
Casuarina glauca, 38147.
Catalpa bungei, 38254, 38419.
Catmon, *Dillenia philippinensis*, 38383.
Ceiba acuminata, 38047.
Celtis morifolia, 37900.
Cereja do Rio Grande, *Eugenia myrcianthes*, 37831.
Cereus jamacaru, 37823.
  triangularis, 38601.
Cestrum sp., 37886.
Chaenomeles lagenaria cathayensis, 37954.
Chaetochloa caudata, 38027.
  imberbis, 37992.
  lachnea, 38026.
  setosa, 38004.
Chamaedorea spp., 38403, 38404, 38515, 38582.
  ernesti-augusti, 38516.
  graminifolia, 38543.
Champac, *Michelia champaca*, 37881.
Chayota edulis, 38567.
Chayote, *Chayota edulis*, 38567.
Chenopodium sp., 37969.
  quinoa, 37970.
Cherimoya, *Annona cherimola*, 38526.
Cherry, *Prunus* spp.:
  bush, *Prunus prostrata*, 37687, 38425.
    Prunus tomentosa, 37680.
  Capulies, 38637.
  (China), 37680.
  (Ecuador), 38637.
  flowering, *Prunus serrulata*, 38206.
  (Italy), 38157.
  (Japan), 38206.
  Prunus cerasifera divaricata, 38157.
    microcarpa, 37686.
  (Russia), 37686, 37687, 38425.
  wild, *Prunus salicifolia*, 38637.
Chestnut, *Castanea mollissima*, 37799, 37800, 38182.
  (China), 37799, 37800, 38182.
  K'uei li tzŭ, 37799.
  Yin li tzŭ, 37800.
Chi chien hung shih tzŭ, *Diospyros kaki*, 37653.
Chi hsin tsao, *Ziziphus jujuba*, 38246.
Chi hsin hung shih tzŭ, *Diospyros kaki*, 37651.
Chia, *Salvia* sp., 38048.
Chia hsien hung shih tzŭ, *Diospyros kaki*, 37676.
Chiar imilla, *Solanum tuberosum*, 38605–38607.
Chick-pea, *Cicer arietinum*, 37714–37717.
  Dakar. See under 37714–37717.
  Nitaya. See under 37714–37717.
  (Turkey), 37714–37717.
Chikuyō-seihan-kōryō, *Holcus sorghum*, 38202.
Chile pepper, *Capsicum frutescens*, 38121.
Chin chan shao yao, *Paeonia albiflora*, 38339.
Chin li, *Pyrus chinensis*, 38240.
Chin lun mu tan, *Paeonia suffruticosa*, 38340.
Chin sui tzŭ li, *Pyrus chinensis*, 38277.
Ching mien shih tzŭ, *Diospyros kaki*, 37664.
Ch'ing p'i t'ien li, *Pyrus chinensis*, 38268.
Ch'ing shih tzŭ, *Diopyros kaki*, 37661, 37666.
Ch'ing tou, *Soja max*, 38456, 38457.
Ch'iu pai t'ao, *Amygdalus persica*, 38273.

Ch'iu shu, *Catalpa bungei*, 38254.
Chloris elegans, 38023.
  leptantha, 38013.
  polydactyla, 37994.
  virgata, 38029.
Chorisia insignis, 38330.
Ch'ou chêng tzŭ, *Poncirus trifoliata*, 37809.
Chrysanthemum spp., 38537, 38658.
Chuang yüan hung mu tan, *Paeonia suffruticosa*, 38340.
Chui yüeh ch'ing tsao, *Ziziphus jujuba*, 38260.
Chung ow, *Chrysanthemum* sp., 38658.
Cicer arietinum, 37714–37717.
Cinchona spp.:
  crown bark, 38042.
  loxa, 38042.
  officinalis, 38042.
  pale bark, 38042.
  red bark, 38043.
  succirubra, 38043.
Cipura paludosa, 37877.
Citron, *Citrus medica*, 37781, 38502.
Citrullus vulgaris, 38105, 38518.
itrus spp., 37784–37786, 37793, 38102, 38335, 38388.
  aurantifolia, 37803, 38499.
  aurantium, 37775, 38503, 38506–38508.
  bergamia, 37779, 37795.
  decumana. See *Citrus grandis*.
  grandis, 37724, 37778, 37780, 37804.
  hystrix, 38132, 38293, 38504.
  limetta, 37772, 37773, 37787, 37789, 37805.
  medica, 37781, 38502.
  moi, 38388.
  nobilis deliciosa, 37753, 37771, 38101.
  papaya, 38505.
  sinensis, 37748–37752, 37754–37770, 37774, 37776, 37777, 37782, 37783, 37788, 37791, 37792, 37796–37798, 37840–37845.
  trifoliata. See *Poncirus trifoliata*.
erodendrum trichotomum, 38148.
itoria cajanifolia. See *Clitoria laurifolia*.
  laurifolia, 37730.
Clover, *Trifolium* spp.
  Apitrèfle, 37937.
  (Canada), 38189, 38190.
  (Hungary), 37681, 37682.
  red, *Trifolium pratense*, 37937–37939, 38189–38190.
  (Switzerland), 37937–37939.
  white, 38579.
Cochineal cactus, *Opuntia* sp., 37746.
Cochlospermum sp. See *Maximilianea* sp.
Coconut, *Cocos nucifera*, 38428–38434.
  cordage, 38428.
  Niu Afa, 38428.
  Niu Kea, 38434.
  Niu Lea, 38432.
  Niu Mea, 38430.
  Niu Nai, 38433.
  Niu Ui, 38429.
  Niu Vai, 38431.
  (Samoa), 38428–38434.
Cocops rivalis, 38588.
Cocos coronata, 37867.
  nucifera, 38428–38434.
  romanzoffiana, 37745.
Coix lacryma-jobi, 38474, 38476.
  lacryma-jobi gigantea, 38475.
   ma-yuen, 37945, 38473.
   stenocarpa, 37946.
Collinia sp., 38399.
Colobot, *Citrus hystrix*, 38293.
Colocasia esculenta, 37692–37695.
Colutea halepica. See *Colutea istria*.
  istria, 38210.
Convolvulus flavus. See *Merremia hederacea*.
Copaifera guibourtiana. See *Copaiva copallifera*.
Copaiva copallifera, 38341.
Copernicia cerifera, 37866.
Coral-bean tree, *Adenanthera pavonina*, 38117, 38650.
Corchorus capsularis, 38141.
Corda de viola, *Calopogonium orthocarpum*, 38329.
Cordia subcordata, 38122.
Corn, *Zea mays*:
  Amricani, 38589.
  (Argentina), 38545, 38546.
  Beladi, 38590.
  Biltani, 38591.
  (Bolivia), 38517.
  (Brazil), 37896, 37909, 38544.

Corn—Continued.
  Cuzco, 38517.
  (Egypt), 38589–38591, 38593, 38595–38598, 38600.
  Fayoumi, 38595.
  Hadari, 38598.
  Manyalawi, 38596.
  Nab el Gamal, 38593.
  Neb el Gamel, 38593.
  (Peru), 37965–37967, 37972.
  Safra, 38600.
  Sinebra, 38597.
Cosmos sulphureus, 37884.
Cotoneaster divaricata, 38149.
  horizontalis perpusilla, 38150.
  pannosa, 38151.
Cotton, *Gossypium* spp., 38286, 38495.
  tree, *Ceiba acuminata*, 38047.
Couma rigida, 37934.
Cowpea, *Vigna sinensis:*
  (Angola), 38295, 38296.
  Black Makunde, 38295.
  (Brazil), 37894, 37915.
  (China), 38447–38449.
  Dinawa, 37743.
  (Egypt), 38110.
  Feijão gurutuba, 37915.
  Hung chiang tou, 38448.
  Makunde la bafeta, 38295.
  Makunde la kusuku, 38296.
  Mammoth, 38110.
  Red Makunde, 38296.
  (Transvaal), 37743.
  Tsa chiang tou, 38447.
  Yang yen pai chiang tou, 38449.
Crab apple, *Malus* sp., 38231.
Crape myrtle, *Lagerstroemia speciosa*, 38294.
Crataegus pinnatifida, 37955, 38176, 38283, 38284, 38487.
Crotalaria sp., 37878.
  juncea, 38140.
Croton angolensis, 37741.
Cucumber, *Cucumis sativus*, 37700.
  India, 37700.
  (Philippine Islands), 37700.
Cucumis anguria, 38113.
  melo, 37920, 38519.
  sativus, 37700.
Cudrania javanensis, 38500, 38501.
Currant, *Ribes diacantha*, 38412.
  Ribes dikuscha, 38411.
  (Russia), 38411, 38412.
Curuba, *Passiflora maliformis*, 38641.
Cyamopsis psoraleoides. See *Cyamopsis tetragonoloba*.
  tetragonoloba, 37725.
Cydonia cathayensis. See *Chaenomeles cathayensis*.
Cymbopogon rufus, 38037.
Cynodon dactylon. See *Capriola dactylon*.
Cyphomandra betacea, 38636.

Dactylis glomerata, 37711.
Dactyloctenium aegyptium, 37999, 38000, 38017.
Danérie-balloi-ssolodérie, *Holcus sorghum*, 37958.
Daphne caucasica, 38420.
Delonix regia, 38653.
Dendé palm, *Elaeis guineensis*, 37869.
Deoband kawâra, *Cyamopsis tetragonoloba*, 37725.
Deparie bodérie, *Holcus sorghum*, 37964.
  danérie, *Holcus sorghum*, 37960.
Deshi, *Cyamopsis tetragonoloba*, 37725.
Dillenia sp., 38384.
  philippinensis, 38383.
Dinawa, *Vigna sinensis*, 37743.
Dioscorea, spp., 38134, 38229.
  aculeata, 37702.
  alata, 37943.
  pentaphylla, 37701.
Diospyros discolor, 38192, 38483.
  embryopteris. See *Diospyros peregrina*.
  kaki, 37648–37658, 37661–37667, 37669, 37670, 37672–37678, 37718, 37948–37952, 38482.
  lotus, 37801, 37811, 37812, 38152.
  peregrina, 38512.
  subtruncata, 38193.
Djeroek balie, *Citrus aurantium*, 38507, 38508.
  citroen, *Citrus medica*, 38502.
  citroen basar, *Citrus aurantifolia*, 38499.
  manis, *Citrus aurantium*, 38503.
  papaya, *Citrus papaya*, 38505.
  pandan, *Citrus aurantium*, 38506.
  peoroet, *Citrus hystrix*, 38504.
Dysoxylum maota, 38124.

Ê li, *Pyrus chinensis*, 38262.
Egot, *Eugenia curranii*, 38375.

Elaeis guineensis, 37869.
Elephantorrhiza burchellii. See *Elephantorrhiza elephantina*.
  elephantina, 38580.
Eleusine aegyptiaca. See *Dactyloctenium aegyptium*.
Elm, *Ulmus* spp.:
  (China), 37671, 37810.
  East Anglian, 38491.
  (England), 38491, 38492.
  Huntingdon, 38492.
  Kuang kuang yü shu, 37810.
Eragrostis acuminata, 38002.
  articulata, 37988, 38012.
  bahiensis, 37985.
  ciliaris, 38010.
  expansa, 37990.
Eremocitrus glauca, 37712, 37808.
Eriobotrya japonica, 38496, 38497, 38568.
Eriochloa polystachya, 38019, 38020.
  punctata, 38022.
Eriodendron acuminatum. See *Ceiba acuminata*.
Erythrina zeyheri, 38632.
Eugenia arrabidae. See *Eugenia campestris*.
  brasiliensis. See *Eugenia dombeyi*.
  campestris, 37830.
  curranii, 38375.
  dombeyi, 37836.
  edulis. See *Eugenia myrcianthes; Myrciaria edulis*.
  myrcianthes, 37831.
  speciosa, 37832.
Euonymus sp., 38237.
Euphoria cinerea, 38374.
Ewaiga, *Holcus sorghum*, 38594.

Fagamanu, *Canna indica*, 38119.
Fanamanu, *Canna indica*, 38119.
Favelleira, *Jatropha acanthophylla*, 37916.
Favorita grass, *Tricholaena rosea*, 38021.
Fei t'ao, *Amygdalus persica*, 38178.
Feijão gurutuba, *Vigna sinensis*, 37915.
Fenugreek, *Trigonella foenum-graecum:*
  K'u t'ou tzŭ, 38465.
Ferula sp., 38633.
Fescue, meadow, *Festuca elatior*, 37710.
Festuca elatior, 37710.
Ficus sycamorus, 37729.
Field pea, *Pisum arvense*, 38440.
Fig, *Ficus sycomorus:*
  (Egypt), 37729.
  sycamore, 37729.
Fir, *Picea obovata*, 38409.
Flatiron prickles, *Opuntia* sp., 37747.
Flax, *Linum usitatissimum*, 37719, 37720.
  (Turkestan), 37719, 37720.
Flowering cherry, *Prunus serrulata*, 38206.
Fo shou t'ao, *Amygdalus persica*, 38272.
Fragaria chiloensis, 38520–38522.
  collina. See *Fragaria viridis*.
  vesca, 37690.
  viridis, 37691.
Fruta de condessa, *Rollinia deliciosa*, 38171.
  macaco, *Rolliniopsis discreta*, 37902.
Fu jung hua, *Albizzia* sp., 38285.
Fuchsia procumbens, 38050.
Fuefuesina, *Cassia occidentalis*, 38123.

Gabiroba, *Campomanesia fenzliana*, 37834.
Gabli killiröm, *Holcus sorghum*, 38533.
  nialgo, *Holcus sorghum*, 38569.
Gaderie, *Holcus sorghum*, 37963.
Gai-hansaku, *Holcus sorghum*, 38196.
Galo, *Anacolosa luzoniensis*, 38395.
Garcinia binucao, 38392.
  kidia, 38513, 38514.
Gau, *Gynopogon bracteolosa*, 38126.
Gaunulega, *Vitex trifolia*, 38130.
Gaya lyallii, 38049.
Genipa americana, 37833, 37935.
Genipap, *Genipa americana*, 37833, 37935.
Genipapo, *Genipa americana*, 37833.
Geranium, *Pelargonium* spp.:
  (Algeria), 37735.
  (England), 37820, 37821.
  (France), 38056, 38136, 38137.
  (Germany), 37736.
  Malvarrosa, 38334.
  rose, 37735, 37736, 38056, 38136, 38137, 38334.
  (Spain), 38334.

- Ginger, *Zinziber officinale*, 38180.
- Ginseng, *Panax quinquefolium*, 37870, 37871.
  - (China), 37870, 37871.
- *Gleditsia* spp., 38239, 38256.
- *Glycine hispida*. See *Soja max*.
- Goiaba roxa, *Psidium guajava*, 37835.
- Gordori, *Holcus sorghum*, 37964.
- Gosho, *Diospyros kaki*, 37718.
- *Gossypium* spp., 38286, 38495.
- Gourd, Kua lü, 38489.
  - *Trichosanthes kirilowii*, 38489.
- Gowari, *Soja max*, 38215.
- Granada, *Punica granatum*, 37817.
- Granadilla, *Passiflora ligularis*, 38642.
- Grape, *Vitis vinifera*, 38186.
  - Nai tzŭ p'u t'ao, 38186.
- Grass, Angola, 37849.
  - Bermuda, *Capriola dactylon*, 38035.
  - bitter, *Chaetochloa setosa*, 38004.
  - (Brazil), 37983–38041.
  - caatingueiro, *Chloris elegans*, 38023.
  - crowfoot, *Dactyloctenium aegyptium*, 37999, 38000, 38017.
  - favorita, *Tricholaena rosea*, 38021.
  - foxtail, *Chaetochloa imberbis*, 37992.
    - *Chaetochloa lachnea*, 38026.
  - guinea, *Panicum* spp., 37984, 37997, 38024, 38030, 38039.
  - Italian rye, *Lolium multiflorum*, 37709.
  - meadow fescue, *Festuca elatior*, 37710.
  - molasses, *Melinis minutiflora*, 38038.
  - oat, *Arrhenatherum elatius*, 38036.
  - orchard, *Dactylis glomerata*, 37711.
  - Para, *Panicum barbinode*, 37998.
  - shore, *Stenotaphrum secundatum*, 37850.
  - sour, *Valota insularis*, 38025.
  - Sudan, *Holcus halepensis*, 38032, 38108.
- Grumichama, *Eugenia dombeyi*, 37836.
- Grumixama, *Eugenia dombeyi*, 37836.
- Guabiroba, *Campomanesia fenzliana*, 37834.
- Guapinol, *Hymenaea courbaril*, 38565.
- Guar, *Cyamopsis tetragonoloba*, 37725.
- Guava:
  - Araça cagão, 38342.
  - Araça mirim, 37922.
- Guava—Continued.
  - (Brazil), 37835, 37897, 37922, 38342.
  - *Psidium guajava*, 37835.
  - *Psidium* spp., 37897, 37922, 38342.
- Guinea grass, *Panicum* spp., 37984, 37997, 38024, 38030, 38039.
- Gum arabic, *Acacia verek*, 38524.
- *Gustavia gracillima*, 38396.
- *Gynopogon* sp., 38125.
  - *bracteolosa*, 38126.

- Hadaka, *Soja max*, 38216.
- Hao pai mu tan, *Paeonia suffruticosa*, 38340.
- Haw. See Hawthorn.
- Hawthorn, *Crataegus pinnatifida:*
  - (China), 37955, 38176, 38283, 38284, 38487.
  - Hung kuo, 37955.
  - Hung li shan cha, 38284.
  - Mien shan cha, 38283.
  - Ta suan cha, 38176.
- Hei shao yao, *Paeonia albiflora*, 38339.
- Hei wan tou, *Pisum arvense*, 38440.
- Hemp, *Cannabis sativa*, 37721, 38466.
  - Kashgar, 37721.
  - Ma tzŭ, 38466.
  - sann, *Crotalaria juncea*, 38140.
  - sunn, *Crotalaria juncea*, 38140.
- *Hernandia peltata*, 38127.
- *Hibiscus esculentus*. See *Abelmoschus esculentus*.
  - *mutabilis*, 38386.
  - *physaloides*, 38106.
  - *sabdariffa*, 37698, 38107.
- *Hieracium* sp., 37873.
- *Holcus halepensis*, 38032, 38108.
  - *sorghum*, 37723, 37733, 37734, 37956–37961, 37963, 37964, 38033, 38034, 38053, 38085–38087, 38173, 38183, 38194–38205, 38354, 38355, 38405, 38406, 38463, 38533, 38569, 38570, 38592, 38594, 38599.
  - *sorghum effusus*, 38005.
- *Homolepis isocalycina*, 38040.
- Horse bean, *Vicia faba*, 38437.
  - Hsiao ts'an tou, 38437.
- *Hordeum* sp., 38302.
  - *distichon erectum*, 38317, 38320.
    - *nutans*, 37706, 38059, 38060, 38303, 38304, 38323, 38484, 38485, 38535.

Hordeum vulgare, 37707, 37968, 38058, 38061, 38062, 38305–38310, 38312, 38316, 38318, 38319, 38321, 38322, 38324, 38326, 38490, 38536.
  vulgare coerulescens, 38057.
    himalayense, 38311.
    leiorrhynchum, 38313.
    nigrum, 38314, 38325.
    pallidum, 38315.
Hsiang ch'ing lo po, *Raphanus sativus*, 38328.
Hsiao hei tou, *Soja max*, 38462.
  huang tou, *Soja max*, 38453, 38455.
  pien t'ao, *Amygdalus persica platycarpa*, 38276.
  ts'an tou, *Vicia faba*, 38437.
Hsien chiang, *Zinziber officinale*, 38180.
Hsing mei, *Prunus* sp., 38282.
Hu p'i tou, *Soja max*, 38460.
Hua yü hua mei, *Prunus glandulosa*, 38337.
Hua yün tou, *Phaseolus vulgaris*, 38445.
Huai tou, *Soja max*, 38458.
Huang tou, *Soja max*, 38454.
  li, *Pyrus chinensis*, 38267.
  wan tou, *Pisum sativum*, 38438.
  ya, *Buxus sempervirens*, 38338.
Hui tsao, *Ziziphus jujuba*, 38258.
Hung chiang tou, *Vigna sinensis*, 38448.
  fu yang, *Rhus punjabensis sinica*, 38158.
  hsiao li, *Pyrus chinensis*, 38242.
  hsiao tou, *Phaseolus angularis*, 38446.
  kao liang, *Holcus sorghum*, 38463.
  kuo, *Crataegus pinnatifida*, 37955.
  li shan cha, *Crataegus pinnatifida*, 38284.
  yü hua mei, *Prunus glandulosa*, 38337.
  yün tou, *Phaseolus vulgaris*, 38444.
Huo kuan shih tzŭ, *Dispyros kaki*, 37657.
Hymenaea courbaril, 38565.
Hypericum patulum henryi, 38153.
Hyptis longipes, 37921.

Igot, *Eugenia curranii*, 38375.
Igut, *Eugenia curranii*, 38375.
Ilang-ilang, *Canangium odoratum*, 38652.
Imbu, *Spondias tuberosa*, 37861–37865.
Imburana de cheiro, *Amburana claudii*, 37906.
Indigofera amblyantha, 38155.
Inga affinis, 37924.
Injerto, *Achradelpha viridis*, 38478–38481.
Inocarpus edulis, 38135.
Ipomoea fistulosa, 37917.

Jaboticaba corôa, *Myrciaria* sp., 37839.
  de cabinho, *Myrciaria* sp., 37838.
  de Para, *Myrciaria* sp., 37838.
  murta, *Myrciaria* sp., 37837.
Jan dawa, *Holcus sorghum*, 38406.
Jasmine, *Jasminum floridum*, 38154.
  Jasminum nudiflorum, 38248.
  Ying ch'un hua, 38248.
Jasminum floridum, 38154.
  nudiflorum, 38248.
Jatropha acanthophylla, 37916.
  curcas, 37875.
Jatuba, *Inga affinis*, 37924.
Job's-tears. See *Coix lacryma-jobi*.
Jua, *Ziziphus joazeiro*, 37907, 37923.
Jua de boi, *Ziziphus joazeiro*, 37907.
Jua mirim, *Celtis morifolia*, 37900.
Juan tsao tzŭ, *Diospyros lotus*, 37811, 37812.
Juglans regia, 38471, 38472.
Jujube, *Ziziphus jujuba:*
  Chi hsin tsao, 38246.
  (China), 37659, 37668, 38187, 38243–38247, 38249–38253, 38258–38261.
  Chui yüeh ch'ing tsao, 38260.
  Hui tsao, 38258.
  Kên tsao, 38251.
  Kuai tsao, 38252.
  Li tsao, 38249.
  Ma lien tsao, 37659.
  Ma ya t'ou tsao, 38261.
  P'o p'o tsao, 38250.
  Shui mên tsao, 38245.
  Su tsao, 38259.
  Ta tsao, 37668, 38187.
  Ta yüan tsao, 38243.
  T'iao tsao, 38244.
  Yüan ts'ui tsao, 38247.
Juningonomi, *Soja max*, 38219.
Jute, Bengal, *Corchorus capsularis*, 38141.

Kakassirie, *Holcus sorghum*, 37956.
Kale, Marrow, *Brassica oleracea caulorapa × viridis*, 37807.
Kan chê, *Saccharum narenga*, 38257.
Kao kan hung shao yao, *Paeonia albiflora*, 38339.
Kao ting pai li, *Pyrus chinensis*, 38270.
Kaoliang, *Holcus sorghum*, 38463.
Kaura, *Holcus sorghum*, 38405.
Kava, *Piper methysticum*, 38291.
Kên tsao, *Ziziphus jujuba*, 38251.
Kenge, *Pandanus butayei*, 37742.
Kijaku-haku-han-kōryō, *Holcus sorghum*, 38205.
Kilburie, *Holcus sorghum*, 37959.
Kobo, *Copaiva copallifera*, 38341.
Kokkoku dagan-kōhan-kōryō, *Holcus sorghum*, 38200.
  hakunen-koryo, *Holcus sorghum*, 38203.
  sasul, *Holcus sorghum*, 38201.
  waishin-han-kōryō, *Holcus sorghum*, 38204.
  kinsul, *Holcus sorghum*, 38194.
Kōnen-kōryō, *Holcus sorghum*, 38195.
Kosuirasu, *Soja max*, 38218.
K'u t'ou tzŭ, *Trigonella foenum-graecum*, 38465.
Kua lü, *Trichosanthes kirilowii*, 38489.
Kuai tsao, *Ziziphus jujuba*, 38252.
Kuang kuang yü shu, *Ulmus parvifolia*, 37810.
K'uei li tzŭ, *Castanea mollissima*, 37799.
K'uei shih tzŭ, *Diospyros kaki*, 37667.
Kumquat, Desert, *Eremocitrus glauca*, 37712, 37808.
Kumu, *Colocacia esculenta*, 37692.

La Aulopa, *Adenanthera pavonia*, 38117.
Lactuca sativa, 38657.
Lagerstroemia flos-reginae. See *Lagerstroemia speciosa*.
  speciosa, 38294.
Lan t'ien mu tan, *Paeonia suffruticosa*, 38340.
Lang ya ch'ih, *Gleditsia* sp., 38239.
Lanutan, *Bombycodendron vidalianum*, 38486.
Laranja da China, *Citrus sinensis*, 37776
Laranja da pera, *Citrus sinensis*, 37797, 37798, 37843.
  da terra, *Citrus aurantium*, 37775.
  lima, *Citrus* sp., 37793.
  natal, *Citrus sinensis*, 37844.
  selecta, *Citrus sinensis*, 37777, 37782, 37796, 37840.
    branca, *Citrus sinensis*, 37841.
    rajada, *Citrus sinensis*, 37842.
  verticillata, *Citrus sinensis*, 37845.
Larch, *Larix kurilensis*, 38414.
Larix kurilensis, 38414.
Lau lao, *Colocasia esculenta*, 37694.
Lauvai matui, *Cassia* sp., 38120.
Lecythis usitata, 38547.
Lens esculenta. See *Lentilla lens*.
Lentil, *Lentilla lens*, 38435, 38436.
  Tsa pien tou, 38435.
Lentilla lens, 38435, 38436.
Leptochloa filiformis, 38007.
Lespedeza macrocarpa. See *Campylotropis macrocarpa*.
Lettuce, *Lactuca sativa*, 38657.
Lilac, *Syringa* sp., 37647.
Lima doce, *Citrus limetta*, 37772, 37773, 37787.
Lima-lima, *Dioscorea pentaphylla*, 37701.
Lime, *Citrus* sp., 38102.
  Citrus aurantifolia, 37803.
  Citrus limetta, 37772, 37773, 37787, 37789, 37805.
  (Brazil), 37772, 37773, 37787, 37789.
  (British West Indies), 37803, 37805.
  (Philippine Islands), 38102.
  sweet, 37772, 37773, 37787, 37789, 37805.
Lime orange, *Citrus* spp., 37784–37786, 37793.
Linum usitatissimum, 37719, 37720.
Limoncillo, *Triphasia trifolia*, 37816.
Li tsao, *Ziziphus jujuba*, 38249.
Lolium multiflorum, 37709.
Lopa, *Adenanthera pavonina*, 38117.
Loquat, *Eriobotrya japonica*, 38496, 38497, 38568.
  Tanaka, 38568.
Lotus tetragonolobus, 38415.
Lou hu shih tzŭ, *Diospyros, kaki*, 37663.

Lu huang shao yao, *Paeonia albiflora*, 38339.
Lü yü mu tan, *Paeonia suffruticosa*, 38340.
Lucuma mammosa. See *Achradelpha mammosa.*
Lusumbi, *Stizolobium cinereum*, 38170.

Ma Ali, *Gynopogon* sp., 38125.
Ma lien tsao, *Ziziphus jujuba*, 37659.
Ma tzŭ, *Cannabis sativa*, 38466.
Ma ya t'ou tsao, *Ziziphus jujuba*, 38261.
Mabola, *Diospyros discolor*, 38192, 38483.
Macambira, *Neoglaziovia concolor*, 37919.
Macaranga tanarius, 38129.
Machilus nanmu. See *Phoebe nanmu.*
Maka opio, *Colocasia esculenta*, 37695.
Makunde la bafeta, *Vigna sinensis*, 38295.
  la kusuku, *Vigna sinensis*, 38296.
Maiwa, *Pennisetum glaucum*, 38407.
Maize. See *Zea mays.*
Malus spp., 38231, 38279, 38280.
  sylvestris, 37683.
Malvarrosa, *Pelargonium* sp., 38334.
Mamani, *Solanum tuberosum*, 38608.
Mamey cartajina, *Mammea americana*, 37814.
  colorado, *Achradelpha mammosa*, 37813.
Mammea americana, 37814.
Mammee, *Mammea americana*, 37814.
Mamona, *Jatropha curcas*, 37875.
Manapo, *Sindora supa*, 37703.
Mandacaru de boi, *Cereus jamacaru*, 37823.
Mandarin, *Citrus nobilis deliciosa*, 38101.
Manga da rosa, *Mangifera indica*, 37790, 37846.
Mangifera sp., 38382.
  indica, 37790, 37846–37848, 38379–38381, 38387, 38390, 38391.
  verticillata, 38394.
Mango, *Mangifera* spp.:
  Augusta, 37848.
  (Brazil), 37790, 37846–37848.
  Carabao, 38390.
  Carlota, 37847.
  (Cochin China), 38387.
  Mekongensis, 38387.
Mango—Continued.
  (Philippine Islands), 38379–38381, 38382, 38390, 38391.
  Pico, 38391.
  Rose, 37790, 37846.
  Xoai thanhca, 38387.
Manguena, *Solanum muricatum*, 38548.
Mangutungu, *Stizolobium cinereum*, 38169.
Manivelho, *Bactris caryotaefolia*, 37927.
Mao chien shih tzŭ, *Diospyros kaki*, 37654.
Maota, *Dysoxylum maota*, 38124.
Marang, *Artocarpus odoratissima*, 38377.
Marrow kale, *Brassica oleracea caulorupa* × *viridis*, 37807.
Ma[illegible], *Tacca pinnatifida*, 38133.
Massaggoa adjagama, *Holcus sorghum*, 38570.
Mast wood, *Calophyllum inophyllum*, 38118.
Mata serrano, *Mammea americana*, 37814.
Maurandia barclaiana, 37883.
Mauritia vinifera, 37819, 37903.
Maximilianea sp., 38099.
Maxixe, *Cucumis anguria*, 38113.
Meadow fescue, *Festuca elatior*, 37710.
Medicago sativa, 37941, 37942, 38138, 38208, 38464, 38523, 38643.
Mei jên mien mu tan, *Paeonia suffruticosa*, 38340.
Meibomia sp., 38331.
Melão, *Cucumis melo*, 37920.
Melinis minutiflora, 37983, 38038.
Merdiera, *Byrsonima crassifolia*, 37728.
Merremia hederacea, 38647.
Metrosideros diffusa, 38051.
Mezera, *Holcus* sp. ×. See under 37723.
Mi kuan shih tzŭ, *Diospyros kaki*, 37678.
Michelia cathcartii, 38288.
  champaca, 37881.
  lanuginosa, 38289.
Mien shan cha, *Crataegus pinnatifida*, 38283.
Millet, pearl, *Pennisetum glaucum*, 37962, 38584–38586.
Mimusops sp., 38172.
  coriacea, 37928.
  elengi, 37726.

Misgawi, *Trifolium alexandrinum*, 38139.
Mo chin mu tan, *Paeonia suffruticosa*, 38340.
Molasses grass, *Melinis minutiflora*, 38038.
Molave, *Vitex parviflora*, 37705.
Moli, *Citrus hystrix*, 38132.
Monkey fruit, *Rolliniopsis discreta*, 37902.
Monkey's-pepper, *Xylopia carminativa*, 37905.
Moquilea tomentosa, 37936.
Mu hsü, *Medicago sativa*, 38464.
Mu shih tzŭ, *Diospyros kaki*, 37650.
Mu tan, *Paeonia suffruticosa*, 38340.
Mucujé, *Couma rigida*, 37934.
Mummy apple, *Carica papaya*, 38292.
Munamal, *Mimusops elengi*, 37726.
Muscowi, *Trifolium alexandrinum*, 38139.
Muskawi, *Trifolium alexandrinum*, 38139.
Muskmelon, *Cucumis melo*, 37[illegible]20, 38519.
Mussaenda philippica, 38104.
Myrciaria spp., 37837–37839.
    edulis, 37829.

Nai li, *Pyrus chinensis*, 38266.
Nai tzŭ p'u t'ao, *Vitis vinifera*, 38186.
Nance, *Byrsonima crassifolia*, 37728.
Nanmu, *Phoebe nanmu*, 37944, 38333.
Nariz, *Anacardium excelsum*, 38209.
Natsu mikan, *Citrus* sp., 38335.
Navel orange, *Citrus sinensis*. See Orange, navel.
Nazia aliena, 38009.
Nen-kōryō-kō, *Holcus sorghum*, 38198.
Neoglaziovia concolor, 37919.
    variegata, 37794.
Ngart, *Plukenetia conophora*, 38644.
Nicuri palm, *Cocos coronata*, 37867.
Niu Afa, *Cocos nucifera*, 38428.
Niu hsin ta shih tzŭ, *Diospyros kaki*, 37662.
Niu Kea, *Cocos nucifera*, 38434.
Niu Lea, *Cocos nucifera*, 38432.
Niu Mea, *Cocos nucifera*, 38430.
Niu Nai, *Cocos nucifera*, 38433.
Niu nai shih tzŭ, *Diospyros kaki*, 37669, 37670.
Niu Ui, *Cocos nucifera*, 38429.
Niu Vai, *Cocos nucifera*, 38431.
Nogueira, *Aleurites moluccana*, 37926.
Oak, *Quercus liaotungensis*, 38181.
Oat, *Avena sativa*, 37708.
    Gul Naesgaard, 37708.
    Naesgaard Yellow, 37708.
Oat-grass, *Arrhenatherum elatius*, 38036.
Ōbō, *Oryza sativa*, 38226.
Oity, *Moquilea tomentosa*, 37936.
Okra, *Abelmoschus esculentus*, 37806.
Olea europaea, 38336.
    foveolata, 38645.
Olive, *Olea europaea*, 38336.
    wild, *Olea foveolata*, 38645.
Opuntia spp., 37746, 37747, 37822, 37824–37828, 37851–37853, 38070.
    albicans, 38063.
    anacantha, 38064.
    candelabriformis, 38065.
    chrysacantha, 38066.
    consoleana, 38067.
    curassavica, 38068.
    diacantha, 38070.
    elata, 38071.
    elata delaetiana, 38069.
    elongata, 38072.
    glaucescens, 38073.
    glaucophylla, 38074.
    glomerata, 38075.
    kleiniae, 38076.
    lanceolata, 38077.
    lemaireana, 38078.
    microcarpa, 38079.
    mieckleyi, 38083.
    paraguayensis, 38080.
    spegazzinii, 38081.
    sulphurea, 38082.
    vulpina, 38084.
Orange, *Citrus* spp.:
    Bergamot, *Citrus bergamia*, 37779, 37795.
    bitter, *Citrus aurantium*, 37775, 38503, 38506–38508.
    (Brazil), 37748–37752, 37754–37770, 37774–37777, 37782–37786, 37788, 37791–37793, 37795–37798, 37840–37845.
    (China), 37809.
    Ch'ou ch'êng tzŭ, 37809.
    Djeroek balie, 38507, 38508.
        manis, 38503.
        pandan, 38506.
    (Japan), 38335.
    (Java), 38503, 38506–38508.
    Laranja da china, 37776.

Orange—Continued.
Laranja da pera, 37797, 37798, 37843.
da terra, 37775.
lima, 37793.
natal, 37844.
selecta, 37777, 37782, 37796, 37840.
branca, 37841.
rajada, 37842.
verticillata, 37845.
lime, 37784–37786, 37793.
Moli, 38132.
Natsu mikan, 38335.
navel, 37748–37752, 37754–37770, 37774, 37783, 37788, 37791, 37792.
pear, 37797, 37798, 37843.
Seville, 37775.
sour. See *Citrus aurantium.*
sweet. See *Citrus sinensis.*
trifoliate, *Poncirus trifoliata*, 37809.
Orchard grass, *Dactylis glomerata*, 37711.
Ormosia calavensis, 37704.
monosperma, 37876.
Oryza sativa, 37696, 37697, 37731, 37732, 37737–37740, 37854–37860, 38044, 38088–38093, 38221–38227, 38327, 38361–38371, 38493, 38494, 38530–38532.
Osterdamia sp., 38177.

Pa yüeh huang shih tzŭ, *Diospyros kaki*, 37677, 37952.
Pacaya salad palm, *Chamaedorea* sp., 38403, 38404.
Pachyrhizus angulatus. See *Cacara erosa.*
Paeonia albiflora, 38339.
moutan. See *Paeonia suffruticosa.*
suffruticosa, 38340.
Pai hsiao tou, *Phaseolus angularis*, 38442.
Pai li, *Pyrus chinensis*, 38241.
P'ai p'ai shih tzŭ, *Diospyros kaki*, 37675.
Pai yü hua mei, *Prunus glandulosa*, 38337.
P'ai p'ai shih tzŭ, *Diospyros kaki*, 37675.
Paina, *Chorisia insignis*, 38330.
Palm, *Attalea* spp., 37899, 37910.
Bactris caryotaefolia, 37927.
(Brazil), 37745, 37819, 37866–37869, 37899, 37903, 37910, 37927.

Palm—Continued.
(British Honduras), 38112, 38538, 38541, 38542.
Burity, 37819, 37903.
Canquib, 38515.
Carnahuba, 37866.
Carnauba, 37866.
Chamaedorea spp., 38403, 38404, 38515, 38582.
ernesti-augusti, 38516.
graminifolia, 38543.
Cocops rivalis, 38588.
Cocos coronata, 37867.
nucifera, 38428–38434.
romanzoffiana, 37745.
Collinia sp., 38399.
Dendê, 37869.
(Guatemala), 38399, 38403, 38404, 38498, 38515, 38516, 38539, 38540, 38543, 38582.
Manivelho, 37927.
Mauritia vinifera, 37819, 37903.
Nicuri, 37867.
Pacaya salad, 38403, 38404, 38582.
Palmeira, 37910.
Piassava, 37868.
(Porto Rico), 38588.
Ptychosperma gracilis, 38538.
salad, 38403, 38404, 38582.
Seaforthia elegans, 38112, 38539, 38540.
Shella-accum, 38516.
Styloma pacifica, 38541.
thurstonii, 38542.
Uchul, *Synecanthus fibrosus*, 38498.
Palma, *Opuntia* spp., 37824, 37826, 37852.
Palmeira, *Attalea* sp., 37910.
Pan shih tzŭ, *Diospyros kaki*, 37655.
Panax quinquefolium, 37870, 37871.
Pandanus butayei, 37742.
Pang chi shên, *Panax quinquefolium*, 37870, 37871.
Panicum barbinode, 37849, 37998.
bulbosum, 38039.
campestre, 37991.
hirticaule, 38014, 38018.
isocalycinum. See *Homolepis isocalycina.*
laxum, 38041.
maximum, 37984, 37997, 38024, 38030.
teneriffae. See *Tricholaena rosea.*

Papaya, *Carica papaya*, 38292, 38648.
  (Danish West Indies), 38648.
  (Samoa), 38292.
Paradise nut, *Lecythis usitata*, 38547.
Paramignia monophylla, 38298.
Pardeshi, *Cyamopsis tetragonoloba*, 37725.
Parinari excelsum, 38175.
Paspalum attenuatum, 38028.
  conjugatum, 38031.
  denticulatum, 38016.
  distichum. See *Paspalum notatum*.
  notatum, 37996.
  scutatum, 38006.
Passiflora edulis, 38097.
  laurifolia, 38373.
  ligularis, 38642.
  maliformis, 38641.
Passion fruit. See *Passiflora* spp.
Pastack shaftaly, *Amygdalus persica*, 38417.
Pata, *Macaranga tanarius*, 38129.
Paulownia fortunei, 38184.
Pea, *Pisum sativum*, 38207, 38438, 38439.
  (China), 38438–38440.
  field, *Pisum arvense*, 38440.
  Huang wan tou, 38438.
Peach, *Amygdalus persica*:
  (Chile), 38577.
  (China), 38178, 38272–38276, 38469, 38470.
  Ch'iu pai t'ao, 38273.
  Fei t'ao, 38178.
  Fo shou t'ao, 38272.
  Hsiao pien t'ao, 38276.
  Pastack shaftaly, 38417.
  (Peru), 38094, 38095.
  Pi t'ao, 38274.
  Rugani Gau, 38416.
  (Russia), 38416–38418.
  Ta hung pien t'ao, 38470.
  Ta pien t'ao, 38275.
  Uvillas, 38095.
Pear, *Pyrus* spp.:
  (China), 37982, 38240–38242, 38262–38271, 38277, 38278.
  Chin li, 38240.
  Chin sui tzŭ li, 38277.
  Ch'ing p'i t'ien li, 38268.
  Ê li, 38262.
  Huang li, 38267.
Pear—Continued.
  Hung hsiao li, 38242.
  Kao ting pai li, 38270.
  Nai li, 38266.
  (New York), 37981.
  Pai li, 38241.
  Pin li, 38263.
  seedless and coreless, 37981.
  Sha pai li, 38264.
  Shui pai li, 38269.
  Su li, 38278.
  Tangshan, 37982.
  T'ien kua li, 38271.
  Tzŭ su li, 38265.
  Yin li, 38266.
Pearl millet, *Pennisetum glaucum*:
  Argum breke, 38584.
    matia, 38585.
    moro, 38586.
  (German West Africa), 37962, 38584–38586.
  Jadirie, 37962.
  Kolbenhirse, 37962.
  Maiwa, 38407.
  (Nigeria), 38407.
Pelargonium sp., 38334.
  capitatum, 37820, 38136.
  odoratissimum, 37736, 38056, 38137.
  radula, 37735, 37821.
Peltophorum ferrugineum. See *Baryxylum inerme*.
  vogelianum. See *Baryxylum dubium*.
Pên shih tzŭ, *Diospyros kaki*, 37949.
Pennisetum glaucum, 37962, 38407, 38584–38586.
  typhoideum. See *Pennisetum glaucum*.
Peony, *Paeonia* spp.:
  Chin chan shao yao, 38339.
  Chin lun mu tan, 38340.
  (China), 38339, 38340.
  Chuang yüan hung mu tan, 38340.
  Hao pai mu tan, 38340.
  Hei shao yao, 38339.
  Kao kan hung shao yao, 38339.
  Lan t'ien mu tan, 38340.
  Lu huang shao yao, 38339.
  Lü yü mu tan, 38340.
  Mei jên mien mu tan, 38340.
  Mo chin mu tan, 38340.
  Ping ch'ing shao yao, 38339.
  Tou lü mu tan, 38340.

Peony—Continued.
  Tung wu êrh chiao mu tan, 38340.
  Yao huang mu tan, 38340.
  Yü i huang mu tan, 38340.
  Yü kuo t'ien ch'ing mu tan, 38340.
Pepino, *Solanum muricatum*, 38548.
Pepper, red, *Capsicum* spp., 37912, 38121.
Persea americana, 38400–38402, 38477, 38549–38564, 38578, 38581, 38583, 38587, 38638–38640.
  gratissima. See *Persea americana*.
Persimmon, *Diospyros* spp.:
  (Bermuda), 38482.
  Chi chien hung shih tzŭ, 37653.
  Chi hsin hung shih tzŭ, 37651.
  Chia hsien hung shih tzŭ, 37676.
  (China), 37648–37658, 37661–37667, 37669, 37670, 37672–37678, 37801, 37811, 37812, 37948–37952, 38152.
  Ching mien shih tzŭ, 37664.
  Ch'ing shih tzŭ, 37661, 37666.
  fire-pot, 37657.
  Gosho, 37718.
  Huo kuan shih tzŭ, 37657.
  (Japan), 37718.
  (Java), 38193.
  Juan tsao tzŭ, 37811, 37812.
  K'uei shih tzŭ, 37667.
  Lou hu shih tzŭ, 37663.
  lotus, 37811, 37812.
  Mao chien shih tzŭ, 37654.
  Mi kuan shih tzŭ, 37678.
  Mu shih tzŭ, 37650.
  Niu hsin ta shih tzŭ, 37662.
  Niu nai shih tzŭ, 37669, 37670.
  Pa yüeh huang shih tzŭ, 37677, 37952.
  P'ai p'ai shih tzŭ, 37675.
  Pan shih tzŭ, 37655.
  Pên shih tzŭ, 37949.
  P'ing shih tzŭ, 37665.
  salt-bag, 37672.
  seedless, 37649–37651, 37653, 37657.
  Shan ko tan shih tzŭ, 37652.
  Shêng ti shih tzŭ, 37649.
  Shui shih tzŭ, 37656.
  Ssŭ lêng shih tzŭ, 37948.
  Ssŭ pu hsiang shih tzŭ, 37658.
  Ta kou tzŭ niu hsin shih tzŭ, 37648.
Persimmon—Continued.
  Ta ou hsin shih tzŭ, 37674.
  Tamopan. See under 37649.
  wild, *Diospyros lotus*, 37801, 37811, 37812.
  Yeh shih tzŭ, 37801.
  Yen pu tai shih tzŭ, 37672.
  Yen shih tzŭ, 37951.
  Yu lou t'ou shih tzŭ, 37950.
  Yü kuei lun shih tzŭ, 37673.
Phaseolus angularis, 38442, 38443, 38446.
  calcaratus, 38441.
  semierectus angustifolius, 37925.
  vulgaris, 37888, 37890, 37891, 38444, 38445.
Phiñu, *Solanum tuberosum*, 38609.
Phoebe nanmu, 37944, 38333.
Phyllostachys sp., 37679.
Physalis curassavica, 38109.
Pi t'ao, *Amygdalus persica*, 38274.
Piassava palm, *Attalea funifera*, 37868.
Picea obovata, 38409.
Pili nut, *Canarium ovatum*, 37685, 38372, 38398.
Pimento de macaco, *Xylopia carminativa*, 37905.
Pin li, *Pyrus chinensis*, 38263.
Pine, *Pinus armandi*, 38467, 38468.
  (China), 38467, 38468.
  Sung tzŭ, 38467.
Ping ch'ing shao yao, *Paeonia albiflora*, 38339.
P'ing shih tzŭ, *Diospyros kaki*, 37665.
Pinha, *Annona squamosa*, 37908.
Pinus armandi, 38467, 38468.
Piper methysticum, 38291.
Piqui, *Caryocar brasiliensis*, 37904.
Pisum arvense, 38440.
  sativum, 38207, 38438, 38439.
Pitahaya, *Cereus triangularis*, 38601.
Pitaya, *Cereus triangularis*, 38601.
Pithecolobium saman. See *Samanea saman*.
Pittosporum eugenioides, 38052.
Plagianthus lyallii. See *Gaya lyallii*.
Platonia insignis, under 37802.
Plukenetia conophora, 38644.
P'o p'o tsao, *Ziziphus jujuba*, 38250.
Pochota, *Ceiba acuminata*, 38047.
Poinciana regia. See *Delonix regia*.
Polo, *Capsicum frutescens*, 38121.

Pomegranate. *Punica granatum*, 37817, 37889, 38185.
  (Brazil), 37889.
  (China), 38185.
  (Ecuador), 37817.
  Shuang shih liu hua, 38185.
Poncirus trifoliata, 37809.
Poplar, *Populus* spp., 37953, 38232, 38255.
  (China), 37953, 38232, 38255.
  Ta pai yang shu, 38255.
Populus sp., 38232.
  tomentosa, 37953, 38255.
Potato, *Solanum tuberosum:*
  Anco-choque, 38602–38604.
  blight-proof, 38300, 38301.
  Bohun, 38360, 38662.
  (Bolivia), 38602–38615, 38617.
  Busola, 38357.
  Chiar imilla, 38605–38607.
  Clio, 38663.
  (England), 38300, 38301.
  Faryd, 38359.
  Maguola, 38356.
  Mamani, 38608.
  New Era, 37947.
  (New Zealand), 37947.
  Olgierd, 38358.
  Phiñu, 38609.
  (Russia), 38356–38360, 38659–38663.
  Twitez, 38660.
  Vitality, 38300, 38301.
  Warszawa, 38659.
  Wohltmann, 38661.
Pouteria caimito, 37929.
Prickly-pear. See *Opuntia* spp.
Pritchardia pacifica. See *Styloma pacifica*.
  thurstonii. See *Styloma thurstonii*.
Prunus sp., 38282.
  armeniaca, 37744, 38230, 38281.
  cerasifera divaricata, 37688, 38157, 38421–38424.
  glandulosa, 38337.
  microcarpa, 37686.
  padus, 38410.
  pedunculata. See *Amygdalus pedunculata*.
  persica. See *Amygdalus persica*.
  prostrata, 37687, 38425.
  salicifolia, 38637.
Prunus serrulata, 38206.
  spinosa macrocarpa, 38426.
  tomentosa, 37680.
Psidium spp., 37897, 37922, 38342.
  guajava, 37835.
Psophocarpus tetragonolobus. See *Botor tetragonoloba*.
Pterocarya caucasica. See *Pterocarya fraxinifolia*.
  fraxinifolia, 38427.
Ptychosperma elegans. See *Seaforthia elegans*.
  gracilis, 38538.
Pua. *Hernandia peltata*, 38127.
Pummelo, *Citrus grandis*, 37724, 37778.
  (Brazil), 37778.
  (Philippine Islands), 37724.
  seedless, 37780.
  Siamese, 37724.
Punica granatum, 37817, 37889, 38185.
Pyrethrum, *Chrysanthemum* sp., 38537.
Pyrus sp., 37982.
  chinensis, 38240–38242, 38262–38271, 38277, 38278.
  communis, 37981.
  malus. See *Malus sylvestris*.
  nivalis elaeagrifolia, 37689.

Quercus liaotungensis, 38181.
Quince, *Chaenomeles lagenaria cathayensis*, 37954.
Quinoa. *Chenopodium quinoa*, 37970.

Radish, *Raphanus sativus*, 38328.
  Hsiang ch'ing lo po, 38328.
  winter, 38328.
Ranghino, *Oryza sativa*, 37739.
Raphanus sativus, 38328.
Raspberry, *Rubus* sp., 37887.
  Rubus rosaefolius, 37885.
Raxtul, *Achradelpha viridis*, 38478–38481.
Red clover, *Trifolium pratense*, 37937–37939, 38189, 38190.
Red pepper, *Capsicum* spp., 37912, 38121.
Rheedia brasiliensis, 37802.
Rhododendron ciliatum × *edgeworthii* 37974.
  dauricum, 38413.
  edgeworthii × *veitchianum*, 37973
  forsterianum, 37973.
  fragrantissimum, 37974.

- ***Rhus punjabensis sinica***, 38158.
- Ribbonwood, large-flowered, ***Gaya lyallii***, 38049.
- ***Ribes diacantha***, 38412.
  - ***dikuscha***, 38411.
- Rice, ***Oryza sativa***:
  - (Africa), 38044.
  - Aikoku, 38222.
  - Banku paddy, 38367.
  - Bau-gauk, 38091.
  - Baw yoot, 38089.
  - (Belgian Kongo), 38044.
  - Benlloch, 37697.
  - Bertone, 37740.
  - Boeloeh itum, 38361.
    - poetih, 38362.
  - Bomba, 37696.
  - Branco, 37857.
  - (Brazil), 37854–37860.
  - (British Guiana), 38530–38532.
  - (Bulgaria), 37731, 37732.
  - (Burma), 38088–38093.
  - Dakhleh Oasis, 38327.
  - Demerara Creole, 38532.
  - (Egypt), 38327.
  - (France), 37739–37740.
  - Garudan Samba, 38368.
  - (India), 38088–38093, 38367–38371.
  - (Japan), 38221–38227.
  - Java paddy, 38092.
  - Kame-no-o, 38225.
  - Kareyur, 38370.
  - Ketan item, 38363.
  - Khargeh Oasis, 38327.
  - Kitaima do Japão, 37856.
  - Kow chow, 38493.
  - Kow san, 38494.
  - Louro do Japão, 37855.
  - Lowland No. 75, 38531.
  - Moetmoerio, 38364.
  - mountain, 37738.
  - Muthu Samba, 38371.
  - Nga-cheik-gale, 38090.
  - Ngasein paddy, 38088.
  - Ōbō, 38226.
  - Omachi, 38224.
  - Pallaiya Samba, 38370.
  - Patarka, 38365.
  - Patraka, 38365.
  - Ranghino, 37739.
  - red, 37731.
  - (Russia), 37737, 37738.
  - Saba-net-Taungbya, 38093.
- Rice—Continued.
  - Shekitori, 38227.
  - Shinriki, 38221.
  - (Siam), 38492, 38494.
  - Skrivimas Koti, 38365.
  - (Spain), 37696, 37697.
  - Sura dhani, 38531.
  - (Surinam), 38361–38366.
  - swamp, 37737.
  - Takenari, 38223.
  - Upland No. 6, 38530.
  - Vallai Kattai, 38369.
  - white, 37732.
  - Witte Wanica, 38366.
- ***Ricinus communis***, 37914.
- ***Rollinia*** sp., 37872.
  - ***deliciosa***, 38171.
  - ***dolabripetala***, 37879.
  - ***glaucescens***, 37880, 37892.
  - ***laurifolia***, 37882.
  - ***sylvatica***, 37930.
- ***Rolliniopsis discreta***, 37902.
- ***Rosa alberti***, 37977.
  - ***banksiae normalis***, 38162.
  - ***brunonii***, 38165.
  - ***fargesii***, 37979.
  - ***filipes***, 38166.
  - ***helenae***, 38163.
  - ***moyesii***, 37979.
  - ***rubus***, 38161, 38164.
  - ***setipoda***, 37978.
  - ***soulieana***, 38159.
  - ***xanthina*** × (?), 38160.
- Rose. See ***Rosa*** spp.
- Roselle, ***Hibiscus sabdariffa***, 37698, 38107.
  - Temprano, 37698.
- Royal poinciana, ***Delonix regia***, 38653.
- Rubber, Central American, ***Castilla nicoyensis***, 38188.
- ***Rubus*** sp., 37887.
  - ***alpestris***, 38571.
  - ***andersoni***, 38572.
  - ***bogotensis***, 38054, 38055, 38114, 38115, 38646.
  - ***calycinus***, 38573.
  - ***niveus*** Thunb., 38574.
  - ***niveus*** Wall. See ***Rubus pedunculosus***, 38576.
  - ***paniculatus***, 38576.
  - ***pedunculosus***, 38575.
  - ***rosaefolius***, 37885.
- Rugani Gau, ***Amygdalus persica***, 38416.

Rye-grass, Italian, *Lolium multiflorum*, 37709.

Saba-net-Taungbya, *Oryza sativa*, 38093.

Saccharum narenga, 38257, 38332.

St. Thomas tree, *Bauhinia tomentosa*, 38651.

Saku, *Croton angolensis*, 37741.

Salad palm, *Chamaedorea* spp., 38403, 38404.

Salix spp., 38179, 38233–38235, 38238.

Salvia sp., 38048.

Saman tree, *Samanea saman*, 38654.

Samanea saman, 38654.

Samoan chestnut, *Inocarpus edulis*, 38135.

Sann hemp, *Crotalaria juncea*, 38140.

Santalum sp., 38128.

Sapote, *Achradelpha mammosa*, 37813, 38634.

  green, *Achradelpha viridis*, 38478–38481, 38566.

Sarcostemma apiculatum, 37913.

Seaforthia elegans, 38112, 38539, 38540.

Sechium edule. See *Chayota edulis*.

Seguidilla, *Botor tetragonoloba*, 37699.

Sesban sp., 38211.

  macrocarpum, 37931.

Sesbania grandiflora. See *Agati grandiflora*.

Setaria imberbis. See *Chaetochloa imberbis*.

  setosa. See *Chaetochloa setosa*.

Severinia buxifolia, 38509, 38510.

Sha pai li, *Pyrus chinensis*, 38264.

Shan ho t'ao, *Juglans regia*, 38472.

  ko tan shih tzŭ, *Diospyros kaki*, 37652.

  shên, *Panax quinquefolium*, 37870, 37871.

Shao yao, *Paeonia albiflora*, 38339.

Shekitori, *Oryza sativa*, 38227.

Shella-accum palm, *Chamaedorea ernesti-augusti*, 38516.

Shêng ti shih tzŭ, *Diospyros kaki*, 37649.

Shih tzŭ. See *Diospyros kaki*.

Shinriki, *Oryza sativa*, 38221.

Shirashuya, *Soja max*, 38228.

Shōkōkoku-han-kōryō, *Holcus sorghum*, 38199.

Shōkōwaishin-han-kōryō, *Holcus sorghum*, 38197.

Shore-grass, *Stenotaphrum secundatum*, 37850.

Shuang shih liu hua, *Punica granatum*, 38185.

Shui mên tsao, *Ziziphus jujuba*, 38245.

  pai li, *Pyrus chinensis*, 38269.

  shih tzŭ, *Diospyros kaki*, 37656.

Sida sp., 37918.

Sindora supa, 37703.

Sloe, *Prunus spinosa macrocarpa*, 38426.

Soap-pod tree, *Gleditsia* sp., 38256.

Soja max, 37684, 38213–38220, 38228, 38450–38462.

Solanum sp., 38174.

  muricatum, 38548.

  tuberosum, 37947, 38300, 38301, 38356–38360, 38602–38615, 38617, 38659–38663.

Sorghum, *Holcus sorghum*:

  (Algeria), 37723, 38183.

  Baierie bodérie, 37957.

  (Barbados), 38173.

  Black Grushevsk, 37733.

  (Brazil), 38033, 38034.

  Chikuyō-seihan-kōryō, 38202.

  (China), 38463.

  Danérie-balloi-ssolodérie, 37958.

  Deparie bodérie, 37964.

    danérie, 37960.

  Durra, 38053.

  (Egypt), 38592, 38594, 38599.

  Ewaiga, 38594.

  Gabli killiröm, 38533

  Gabli nialgo, 38569.

  Gaderie, 37963.

  Gai-hansaku, 38196.

  (German West Africa), 37956–37961, 37963, 37964, 38533, 38569, 38570.

  Giant Sudan, 38183.

  Gordori, 37964.

  Hung kao liang, 38463.

  Iantar, 37734.

  (Italy), 38053.

  Isnawi, 38592.

  Jan dawa, 38406.

  Janome, 38085.

  (Japan), 38085–38087, 38194–38205, 38354, 38355.

Sorghum—Continued.
  Kakassirie, 37956.
  kaoliang, 38463.
  Kaura, 38405.
  Kijaku-haku-han-kōryō, 38205.
  Kilburie, 37959.
  Kokkoku dagan-kōhan-kōryō, 38200.
    hakunen-kōryō, 38203.
    kinsui, 38194.
    sasui, 38201.
    waishin-han-kōryō, 38204.
  Kōnen-kōryō, 38195.
  Massaggon adjagama, 38570.
  Mezera, under 37723.
  Nen-kōryō-kō, 38198.
  (Nigeria), 38405, 38406.
  (Russia), 37733, 37734.
  Saifi beladi rafeh, 38599.
  Shōkōkoku-han-kōryō, 38199.
  Shōkōwaishin-han-kōryō, 38197.
  Ssanerari, 37961.
Sorghum halepense. See *Holcus halepensis.*
  vulgare. See *Holcus sorghum.*
Sotia guvar, *Cyamopsis tetragonoloba*, 37725.
Sour-grass, *Valota insularis*, 38025.
Soy bean, *Soja max:*
  Aksaya, 38214.
  Aonifūdō, 38220.
  Aotsurunoko, 38217.
  (China), 37684, 38450–38462.
  Ch'ing tou, 38456, 38457.
  Gowari, 38215.
  Hadaka, 38216.
  Hsiao hei tou, 38462.
  Hsiao huang tou, 38453, 38455.
  Hu p'i tou, 38460.
  Huai tou, 38458.
  Huang tou, 38454.
  (Japan), 38213–38220, 38228.
  Juningonomi, 38219.
  Kōsuirasu, 38218.
  Large white eyebrow, 37684.
  Shirashaya, 38228.
  Ta hei tou, 38461.
  Ta huang tou, 38450–38452.
  Ta tzŭ tou, 38459.
  Tsurunoko, 38213.
Spindle wood, *Euonymus* sp., 38237.
Spiraea japonica acuminata, 38167.
Spondias tuberosa, 37861–37865.
Sporobolus argutus, 38011.
  indicus, 37989.
Ssanerari, *Holcus sorghum*, 37961.
Ssŭ lêng shih tzŭ, *Diospyros kaki*, 37948.
Ssŭ pu hsiang shih tzŭ, *Diospyros kaki*, 37658.
Stadmannia oppositifolia, 38378.
Stenotaphrum secundatum, 37850.
Sterculia sp., 37727.
Stizolobium cinereum, 38169, 38170.
Strawberry, *Fragaria* spp.:
  (Bolivia), 38520–38522.
  hill, 37691.
  (Caucasus), 37690, 37691.
  white, 38520.
  wildwood, *Fragaria vesca*, 37690.
Styloma pacifica, 38541.
  thurstonii, 38542.
Su li, *Pyrus chinensis*, 38278.
Su tsao, *Ziziphus jujuba*, 38259.
Sudan grass, *Holcus halepensis*, 38032, 38108.
Sugar-apple, *Annona squamosa*, 38635.
Sugar cane, *Saccharum narenga:*
  (China), 38257, 38332.
  Kan chê, 38257.
Suha, *Citrus hystrix*, 38293.
Sumach, *Rhus punjabensis sinica*, 38158.
Sung tzŭ, *Pinus armandi*, 38467.
Sunn hemp, *Crotalaria juncea*, 38140.
Supa, *Sindora supa*, 37703.
Sura dhani, *Oryza sativa*, 38531.
Sweetsop, *Annona squamosa*, 37818.
Sycamore fig, *Ficus sycomorus*, 37729.
Synecanthus fibrosus, 38498.
Syntherisma digitata, 38015.
Syringa sp., 37647.
Syzygium sp., 37932.

Ta hei tou, *Soja max*, 38461.
Ta huang tou, *Soja max*, 38450–38452.
Ta hung pien t'ao, *Amygdalus persica platycarpa*, 38470.
Ta kou tzŭ niu hsin shih tzŭ, *Diospyros kaki*, 37648.
Ta ou hsin shih tzŭ, *Diospyros kaki*, 37674.

Ta pai yang shu, *Populus tomentosa*, 38255.
Ta pien t'ao, *Amygdalus persica platycarpa*, 38275.
Ta p'in kuo, *Malus* sp., 38279.
Ta sha kuo, *Malus* sp., 38280.
Ta shan shên, *Panax quinquefolium*, 37870, 37871.
Ta shui hsing, *Prunus armeniaca*, 38281.
Ta suan cha, *Crataegus pinnatifida*, 38176.
Ta tsao, *Ziziphus jujuba*, 37668, 38187.
Ta tzŭ tou, *Soja max*, 38459.
Ta yüan tsao, *Ziziphus jujuba*, 38243.
Tabebuia pentaphylla, 38649.
Tacca pinnatifida, 38133.
Tahiti-chestnut, *Inocarpus edulis*, 38135.
Takenari, *Oryza sativa*, 38223.
Talauma sp., 38103.
Tangerine, *Citrus nobilis deliciosa*, 37753, 37771.
  (Brazil), 37753, 37771.
Tarata, *Pittosporum eugenioides*, 38052.
Taro, *Colocasia esculenta:*
  Apuwai ulaula, 37693.
  (Hawaii), 37692–37695.
  Kumu, 37692.
  Lau loa, 37694.
  Maka opio, 37695.
Thespesia campylosiphon. See *Bombycodendron vidalianum*.
Thladiantha dubia, 38488.
Thuja orientalis, 37660.
T'iao tsao, *Ziziphus jujuba*, 38244.
Tibulit, *Citrus hystrix*, 38293.
T'ien kua li, *Pyrus chinensis*, 38271.
Tomate de arbol, *Cyphomandra betacea*, 38636.
Tomato, tree, *Cyphomandra betacea*, 38636.
Tou lü mu tan, *Paeonia suffruticosa*, 38340.
Toung-tha-lai, *Garcinia kidia*, 38513, 38514.
Tree tomato, *Cyphomandra betacea*, 38636.
Tricholaena rosea, 38021.
Trichosanthes kirilowii, 38489.
Trifolium alexandrinum, 38139.
  angulatum, 37681.
  parviflorum, 37682.
Trifolium pratense, 37937–37939, 38189–38190.
  repens, 38579.
Trigonella foenum-graecum, 38465.
Triphasia aurantiola. See *Triphasia trifolia*.
  trifolia, 37816.
Tristania suaveolens, 38098.
Triticum aestivum, 37971, 38343–38353, 38528, 38529, 38534, 38618–38621, 38623, 38626–38631.
  durum, 38622, 38624, 38625.
  vulgare. See *Triticum aestivum*.
Tsa chiang tou, *Vigna sinensis*, 38447.
Tsa hsiao tou, *Phaseolus angularis*, 38443.
Tsa pien tou, *Lentilla lens*, 38435.
Tsao. See *Ziziphus jujuba*.
Tsurunoko, *Soja max*, 38213.
Tu pei tzu, *Rhus punjabensis sinica*, 38158.
Tugue, *Dioscorea aculeata*, 37702.
Tung po chu, *Phyllostachys* sp., 37679.
  tree, *Aleurites* spp., 37980, 38527.
  wu êrh chiao mu tan, *Paeonia suffruticosa*, 38340.
T'ung shu, *Paulownia fortunei*, 38184.
Tzŭ su li, *Pyrus chinensis*, 38265.

Uchul palm, *Synecanthus fibrosus*, 38498.
Ulluco, *Ullucus tuberosus*, 38616.
Ulluco papa lisa, *Ullucus tuberosus*, 38616.
Ullucus tuberosus, 38616.
Ulmus sp., 37671.
  foliacea, 38491.
  hollandica vegeta, 38492.
  parvifolia, 37810.
Umbu, *Spondias tuberosa*, 37861–37865.
Undetermined, 37815, 38116, 38212.
Uvaia do campo, *Eugenia campestris*, 37830.
Uvillas, *Amygdalus persica*, 38095.

Valota insularis, 38025.
Vicia faba, 38045, 38437.
Vigna nilotica, 38046.
  sinensis, 37743, 37894, 37915, 38110, 38295, 38296, 38447–38449.
Vitex parviflora, 37705.
  trifolia, 38130, 38131.

Vitis reticulata, 38168.
    vinifera, 38186.

Walnut, *Juglans regia*, 38471, 38472.
    Caucasian, *Pterocarya fraxinifolia*, 38427.
    Shan ho t'ao, 38472.
Wan tou, *Phaseolus calcaratus*, 38441.
Watermelon, *Citrullus vulgaris*, 38105, 38518
Wheat, *Triticum* spp.:
    Alpha, 38343.
    Apulia, 38622.
    Australian Early, 38631.
    (Australia), 38343–38353.
    Bayah, 38344.
    Bunyip, 38345.
    Caledon Baard, 38620.
    Comeback, 38346.
    durum, 38622, 38624, 38625.
    Ecksteen, 38626.
    Federation, 38347.
    Firbank, 38348.
    Florence, 38349.
    Fourie, 38627.
    Gluyas Early, 38350, 38528, 38630.
    Grimbeek's Kleinkoren, 38623.
    Kaalkop, 38619.
    Medeah, 38625.
    (Peru), 37971.
    Potchefstroom White, 38619.
    Rooi Wolkoren, 38629.
    (Russia), 38534.
    spring, 38621.
    Standerton Winter, 38618.
    Steinwedel, 38351.
    Theunissen, 38624.
    (Transvaal), 38528, 38529, 38618–38631.
    Warren, 38352.
    Wit Kleinkoren, 38628.
    Wolkoren, 38529, 38629.
    Yandilla King, 38353.
Wikstroemia chamaedaphne, 38236.
Willow, *Salix* spp., 38179, 38233–38235, 38238.
Wood-oil tree. See Tung tree.
Wu pei tzŭ, *Rhus punjabensis sinica*, 38158.

Xoai thanhca, *Mangifera indica*, 38387.
Xylopia carminativa, 37905.

Yam, *Dioscorea* spp., 37701, 37702, 37943, 38134, 38229.
    Lima-Lima, 37701.
    Tugue, 37702.
Yam bean, *Cacara erosa*, 38665.
Yang shên, *Panax quinquefolium*, 37870, 37871.
Yang yen pai chiang tou, *Vigna sinensis*, 38449.
Yao huang mu tan, *Paeonia suffruticosa*, 38340.
Yeh shih tzŭ, *Diospyros lotus*, 37801.
Yen pu tai shih tzŭ, *Diospyros kaki*, 37672.
Yen shih tzŭ, *Diospyros kaki*, 37951.
Yin li, *Pyrus chinensis*, 38266.
Yin li tzŭ, *Castanea mollissima*, 37800.
Ying ch'un hua, *Jasminum nudiflorum*, 38248.
Ylang-ylang, *Canangium odoratum*, 38652.
Yu lou t'ou shih tzŭ, *Diospyros kaki*, 37950.
Yü hua mei, *Prunus glandulosa*, 38337.
Yü i huang mu tan, *Paeonia suffruticosa*, 38340.
Yü kuei lun shih tzŭ, *Diospyros kaki*, 37673.
Yü kuo t'ien ch'ing mu tan, *Paeonia suffruticosa*, 38340.
Yüan shên, *Panax quinquefolium*, 37870, 37871.
    ts'ui tsao, *Ziziphus jujuba*, 38247.

Zapote (undetermined), 37815.
Zea mays, 37896, 37909, 37965–37967, 37972, 38517, 38544–38546, 38589–38591, 38593, 38595–38598, 38600.
Zephyranthes sp., 38111.
Zinziber officinale, 38180.
Ziziphus joazeiro, 37907, 37923.
    jujuba, 37659, 37668, 38187, 38243–38247, 38249–38253, 38258–38261.
    sativa. See *Ziziphus jujuba*.

○

Issued October 30, 1917.

U. S. DEPARTMENT OF AGRICULTURE.
BUREAU OF PLANT INDUSTRY.
WILLIAM A. TAYLOR, *Chief of Bureau.*

INVENTORY
OF
SEEDS AND PLANTS IMPORTED
BY THE
OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM JULY 1 TO SEPTEMBER 30, 1914.

(No. 40; Nos. 38666 to 39308.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1917.

BUREAU OF PLANT INDUSTRY.

Chief of Bureau, WILLIAM A. TAYLOR.
Associate Chief of Bureau, KARL F. KELLERMAN.
Officer in Charge of Publications, J. E. ROCKWELL.
Chief Clerk, JAMES E. JONES.

FOREIGN SEED AND PLANT INTRODUCTION.

SCIENTIFIC STAFF.

David Fairchild, *Agricultural Explorer in Charge.*

P. H. Dorsett, *Plant Introducer, in Charge of Plant Introduction Field Stations.*
B. T. Galloway, *Plant Pathologist, in Charge of Plant Protection and Plant Propagation.*
Peter Bisset, *Plant Introducer, in Charge of Foreign Plant Distribution.*
Frank N. Meyer and Wilson Popenoe, *Agricultural Explorers.*
H. C. Skeels, S. C. Stuntz, and R. A. Young, *Botanical Assistants.*
David A. Bisset, Nathan Menderson, and Glen P. Van Eseltine, *Assistants.*
Robert L. Beagles, *Superintendent, Plant Introduction Field Station, Chico, Cal.*
Edward Simmonds, *Superintendent, Plant Introduction Field Station, Miami, Fla.*
John M. Rankin, *Superintendent, Yarrow Plant Introduction Field Station, Rockville, Md.*
J. E. Morrow, *Superintendent, Plant Introduction Field Station, Brooksville, Fla.*
Edward Goucher, *Plant Propagator.*
Collaborators: Aaron Aaronsohn, *Director, Jewish Agricultural Experimental Station, Haifa, Palestine;* Thomas W. Brown, *Gizeh, Cairo, Egypt;* H. M. Curran, *Laurel, Md.;* M. J. Dorsey, *University Farm, St. Paul, Minn.;* H. T. Edwards, *Ridgewood, N. J.;* Dr. Gustav Eisen, *California Academy of Sciences, San Francisco, Cal.;* E. C. Green, *Serviço do Algodão, Rio de Janeiro, Brazil;* A. C. Hartless, *Seharunpur Botanic Gardens, Seharunpur, India;* E. J. Kraus, *University of Chicago, Chicago, Ill.;* Barbour Lathrop, *Chicago, Ill.;* Miss Eliza R. Scidmore, *Yokohama, Japan;* Charles Simpson, *Littleriver, Fla.;* H. P. Stuckey, *Experiment, Ga.;* Dr. L. Trabut, *Director, Service Botanique, Algiers, Algeria;* E. H. Wilson, *Arnold Arboretum, Jamaica Plain, Mass.*

CONTENTS.

Page.

Introductory statement 5

Inventory 9

Index of common and scientific names 99

ILLUSTRATIONS.

Page.

PLATE I. The first Chinese litchi tree (*Litchi chinensis* Sonnerat) to fruit in the United States. (See S. P. I. No. 38779.) 28

II. An orchard of the large-fruited Chinese hawthorn (*Crataegus pinnatifida* Bunge) near Taianfu, Shantung, China. (See S. P. I. No. 38796.) 28

III. Arbor vitæ (*Thuja orientalis* L.) in Shensi, China. (See S. P. I. No. 38798.) 30

IV. An old soap-bean tree (*Gleditsia sinensis* Lam.) near Tientangyi, Shensi, China. (See S. P. I. No. 38800.) 30

V. The lumbang (*Aleurites moluccana* (L.) Willd.) growing in Bahia, Brazil. (See S. P. I. No. 38945.) 50

VI. The Queensland nut (*Macadamia ternifolia* Mueller), as grown in Cuba. (See S. P. I. No. 39144.) 50

VII. Foliage and flowers of the Queensland nut (*Macadamia ternifolia* Mueller), as grown in Florida. (See S. P. I. No. 39144.) 84

VIII. Spathodea campanulata Beauv., a strikingly handsome ornamental tree for Florida. (See S. P. I. No. 39222.) 84

IX. Tree of Phyllanthus acida (L.) Skeels growing in Florida. (See S. P. I. No. 39261.) 96

X. Fruit and foliage of Phyllanthus acida (L.) Skeels, as grown in Florida. (See S. P. I. No. 39261.) 96

INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM JULY 1 TO SEPTEMBER 30, 1914 (NO. 40; NOS. 38666 TO 39308).

INTRODUCTORY STATEMENT.

The introductions in this inventory which appear most important from the brief descriptions received and from our limited experience with them are as follows:

Forage plants.—The Australian Rhodes grass, *Chloris virgata* variety *decora*, No. 39177, which has succeeded wonderfully on claypan, wind-swept, and sun-scorched soils when other grasses were difficult to establish; 12 species of grass, Nos. 38765 to 38776, from South Africa, some from the Kalahari desert region and others from the Transvaal and the Caldeon division of the coast region, which, if any of them prove as valuable as the Rhodes grass so successfully established here from the same general climatic area, will be decided acquisitions; a cowpea, No. 39143, called imboomba, grown by the Zulus of South Africa; a selected forage sugar cane called Quacsofoca, No. 39165, which in Queensland has proved superior to all the old standard sorts by its hardiness, yield, softness, and superior food value; grasses, *Erianthus rufipilus*, from the Himalayas, and *Pollinia fulva*, from the interior of Australia, Nos. 39010 and 39011, of one of which cattle are so extremely fond that they kill it by close cropping; and a smaller, finer stemmed grass somewhat resembling Para grass, *Eriochloa subglabra*, No. 38892, from Brazil called Capim Angolinha.

Cereals.—A collection of 13 forms of the grass *Coix lacryma-jobi*, Nos. 38868 to 38880, known as Job's-tears, certain of which produce soft kernels and are cultivated for food; 33 varieties of corn, Nos. 39228 to 39260, of the characteristic type from Copacabana, Peru; 5 varieties of the same cereal, Nos. 39158 to 39162, from Yachow, western China; a collection of sorghum varieties from Java, Nos. 39264 to 39282; 20 varieties of rice from the same tropical island,

---

NOTE.—This bulletin is a record of new or little-known seeds or plants procured mostly from abroad. It is intended for distribution to agricultural experiment stations and the more important private cooperators.

Nos. 39199 to 39218; and the 2 commercial rices of the Valencia rice-growing region of southeastern Spain, Nos. 38685 and 38686.

Vegetables.—A fine variety of the winter *pe-tsai* or Chinese cabbage, *Brassica pekinensis*, No. 38782, with very white heads of a mild flavor; 2 rhubarb species, Nos. 39049 and 39050, from Darjiling, the stems of one of which are used for tarts, which might be hybridized with *Rheum rhaponticum;* 22 varieties of cassava, Nos. 38947 to 38968, representing the most important sorts grown in the State of Bahia, Brazil; a variety of pumpkin, No. 38884, from the Oasis of Merv, Turkestan, which has withstood the heat and drought of Sonora, Mexico, better than other sorts tested there; a long blood-red carrot for pickling purposes, from Sianfu, China, No. 38786; and a shrubby species of indigo, *Indigofera dosua*, No. 39119, from the temperate Himalayas, the flowers of which are eaten as a potherb, while the plant is used for fodder.

Fruits.—Seedlings from a large feijoa fruit, No. 38970, which was 3½ by 2½ inches, a most unusual size for this promising Paraguayan fruit; the Pelese apricot from Somma Vesuviana in Italy, No. 38778, which, according to Dr. Gustav Eisen, the discoverer, is superior to the Royal, with very firm flesh and fine flavor and good shipping qualities; the wampi, *Claucena lansium*, No. 38708, a fruit related to the orange, but not as yet fruited in America, promising, furthermore, as a stock for the orange and grapefruit; a tropical grape, *Vitis tiliaefolia*, No. 38853, of vigorous habit and producing good fruits useful for jellies, which deserves to be used in the production of varieties of tropical grapes of good quality; six varieties of kuruba or Passiflora, Nos. 38881, 38882, and 39223 to 39226, which in Bogota are standard market fruits very highly esteemed by North Americans there, a red-fruited variety being particularly prized because of its decorative color; a new species of Eriobotrya, *E. petiolata*, No. 39111, related to the loquat, which may be of value as a stock for the latter, from the eastern Himalayan region; the Luisa mango, No. 38981, a fine type, presumably originating from Philippine seed in the island of Cuba; a quantity of litchi seeds gathered from bearing trees of this important fruit now growing in the Hawaiian Islands, No. 38779; *Poupartia axillaris*, No. 39136, a new fruit and shade tree from western Hupeh and Szechwan Provinces of China, which has proved hardy in Georgia; *Sorbus cuspidata* and *Sorbus insignis*, Nos. 39133 and 39134, two deciduous fruit trees native to the eastern Himalayas; *Dillenia pentagyna*, No. 39109, a deciduous tree from Oudh, Bengal, Assam, India, and Burma, the flowers, buds, and green fruits of which are eaten by the natives; and a remarkable rambling Rubus, *R. niveus*, No. 39130, from Kashmir and Sikkim, which is reported to bear a fruit superior to the English blackberry.

Trees for shade, for use around the dooryard, or for windbreaks.—The 80-foot tall, wild, pink-flowered cherry of Japan, *Prunus serrulata sachalinensis*, No. 38761, from the Arnold Arboretum, which deserves to be planted by the hundreds of thousands in our parks and on our private estates because of its hardiness and great beauty as a spring-flowering tree; the Nepal ash, No. 39014, which, though not hardy in England, may prove to be so in our Southern States; the East African cedar, *Juniperus procera*, No. 39185, from Eritrea, the wood of which, according to Schweinfurth, makes better pencils than that of the American juniper; the Swaziland tree, *Balanites maughamii*, No. 39196, a native of Portuguese East Africa, from the seeds of which a clear yellow odorless oil of about the commercial value of cottonseed oil is obtained, but which, because of difficulties of extraction, has not been exploited; the lofty forest tree, *Picea smithiana*, No. 39040, from Darjiling, India, the wood of which is used for packing cases and for charcoal; the moderate-sized horse-chestnut from northern Bengal, *Aesculus assamicus*, No. 39102; the Mongolian linden, *Tilia mongolica*, No. 38810, from Tahuashan, China, which Mr. Meyer thinks will be hardy in our Northern States; three distinct varieties of the Chinese soap-bean tree, *Gleditsia sinensis*, Nos. 38800 to 38802, which are remarkably drought and alkali resistant and are very ornamental, carrying all winter their pods, which contain large amounts of saponin; and the cigar-boxwood tree of China, *Toona sinensis*, No. 38805, from Changli, which ought to make a beautiful shade and avenue tree and be useful in the Southwest for its timber. The small Nepalese hazelnut, *Corylus ferox*, No. 39106, with prickly cups but edible nuts, may find a use in the development of the hazelnut industry. The large bamboo, *Dendrocalamus hamiltonii*, Nos. 38736 and 39178, from Darjiling, which produces shoots 80 feet tall, the young sprouts of which are edible and from which a luxury called *gass-tenga* is made in Assam, may prove hardy in the Southern States and be used, as it is in India, for windbreak purposes. As dooryard shrubs for small homes may be mentioned an evergreen Cotoneaster, *C. microphylla*, No. 39008; 18 Himalayan species of Rhododendron, Nos. 39051 to 39068, among them a dwarf form, a yellow-flowered form, and one reported to be adapted for use in the parched and arid climate of Tibet; a Nepal barberry, *Berberis nepalensis*, No. 39105, which flowers from October to March in the mild climate of its native habitat; an autumn-flowering plant, *Polygonum vaccinifolium*, No. 39048, for rock work, which has proved a favorite in England, where its bright rose-colored flowers bloom from August to November; and three forms of the evergreen shrubs Euonymus, Nos. 38833 to 38835, from Tahuashan, in the Shensi Province of China.

Editorial note.—Chinese names in this inventory have been brought, so far as possible, into accord with the best authorities, the geographic names (except when fixed by decisions of the United States Geographic Board) being given in the form accepted by the Chinese Ministry of Communications Postal Guide. Many of the smaller village names, however, are not listed therein, and in all such cases the location of the village is given with reference to the nearest town mentioned in that reference work.

The manuscript of this inventory has been prepared by Miss May Riley, the botanical determinations of seeds introduced have been made and the notes on geographic distribution compiled by Mr. H. C. Skeels, and the descriptive notes arranged by Mr. S. C. Stuntz, who has also had general supervision of this inventory.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., November 16, 1916.

INVENTORY.

38666 and 38667.

From Tolga, Queensland, Australia. Presented by Mr. J. A. Hamilton. Received July 1, 1914. Quoted notes by Mr. Hamilton.

38666. Hibiscus radiatus Cav. Malvaceæ.

"Flowers yellow, crimson center. This plant is reputed a cure for fevers, etc., and a blood purifier. The whole plant is cut up, boiled, and the liquid drunk. Prefers sandy soil."

38667. Livistona muelleri Bailey. Phœnicaceæ. **Fan palm.**

"Fan palm, 10 feet. Requires sandy soil."

38668. Piratinera alicastrum (Swartz) Baill. Moraceæ.
(*Brosimum alicastrum* Swartz.) **Bread-nut tree.**

From Merida, Yucatan, Mexico. Presented by Mr. Julio Rendón, through Mr. P. L. Ricker, of the Bureau of Plant Industry. Received July 2, 1914.

See S. P. I. No. 34876 for previous introduction and description.

38669. Pennisetum glaucum (L.) R. Brown. Poaceæ.
(*Pennisetum typhoideum* Rich.) **Pearl millet.**

From Zomba, Nyassaland, Africa. Presented by the Department of Agriculture, Zomba. Received June 29, 1914.

"*Machewere.* A local variety of spiked millet."

38670. Holcus halepensis L. Poaceæ. **Johnson grass.**
(*Sorghum halepense* Pers.)

From Bahia, Brazil. Presented by Dr. V. A. Argollo Ferrão. Received July 1, 1914.

"The maturing of seeds of this grass seems to be very irregular, perhaps because we are now in our rainy season." (*Argollo Ferrão.*)

38671 to 38674.

From Port Louis, Mauritius. Presented by Mr. G. Regnard. Received July 2, 1914. Quoted notes by Mr. Regnard, except as otherwise indicated.

38671. Aleurites fordii Hemsley. Euphorbiaceæ. **Tung tree.**

"Large, spreading tree, very ornamental, both for its foliage and large pinkish white flowers. I have sent you by this mail per sample post two positive plates of *Aleurites* sp., representing flowers and young tree, about 20 feet high, which bloomed profusely during the month of November at my up-country residence. The blossoming generally precedes the coming out of leaves, but this year, owing to more active vegetation, the flowers

38671 to 38674—Continued. (Quoted notes by Mr. G. Regnard.)

and leaves showed at the same time. The seeds will be analyzed in our Department of Agriculture, and I shall give you the result. It is to be feared that the crop of seeds will be poor, as we have had very windy weather which has been an obstacle to the pollination."

38672. ROSCHERIA MELANOCHOETES Wendland. Phœnicaceæ. Palm.

"Fruit tree, from Saigon, Indo-China."

38673. PHOENICOPHORIUM BORSIGIANUM (Koch) Stuntz. Phœnicaceæ. (*Stevensonia grandifolia* Duncan.) Palm.

See Hooker, Curtis's Botanical Magazine, plate 7277, for full description.

38674. ROLLINIA MUCOSA (Jacq.) Baillon. Annonaceæ. (*Rollinia sieberi* A. DC.)

"Fruit tree, very large fruited."

"A small tree with the habit of *Annona reticulata* L. with large edible fruit not equal in flavor to that of the cherimoya or sugar-apple." (*Safford, Classification of Annona, Contr. U. S. Nat. Herb., vol. 18, p.* 5[illegible]. *1914*, which see for full description and illustration.)

38675. ANNONA CHERIMOLA Miller. Annonaceæ. **Cherimoya.**

From Brisbane, Australia. Presented by Mr. Leslie Gordon Corrie. Scions received July 1, 1914.

38676 to 38684.

From Cuzco, Peru. Presented by Dr. A. A. Giesecke, president, University of Cuzco. Received July 1, 1914.

38676 to 38678. AMYGDALUS PERSICA L. Amygdalaceæ. **Peach.** (*Prunus persica* Stokes.)

38676. Special white.

38677. *Doncietitas.*

38678. Special white.

38679. AMYGDALUS PERSICA NECTARINA Ait. Amygdalaceæ. **Nectarine.**

38680 to 38683. AMYGDALUS PERSICA L. Amygdalaceæ. **Peach.** (*Prunus persica* Stokes.)

Seeds of four distinct varieties of peaches introduced, like the preceding, for the work of Mr. W. F. Wight in breeding rosaceous plants.

38684. PRUNUS SALICIFOLIA H. B. K. Amygdalaceæ. **Black cherry.**

"Not only is the rum cherry (*Prunus serotina*) widely spread in North America, but one of its forms reaches through Mexico, across the Isthmus of Panama, as far south as the mountains of Peru. Near Quito in Ecuador, where this tree grows on the Equator, it appears to be in fruit the whole year round. This is *P. salicifolia*." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 251.*)

38685 and 38686. ORYZA SATIVA L. Poaceæ. **Rice.**

From Spain. Presented by Mr. Claude I. Dawson, American consul, Valencia, Spain. Received July 2, 1914.

"Two strains of the *Benlloch* (or *Belloch*) variety. The commercial classes of rice in the Valencia region, especially along the north and south banks of the Jucar River, or center of the rice district, are at present *Benlloch* (or *Belloch*

38685 and 38686—Continued.

and *Amonquili*. During 1913 the two were cultivated in the proportion of 80 per cent for the first and 20 per cent for the second, and in the season just beginning the *Benlloch* will certainly be overwhelmingly preferred, in view of repeated excellent results obtained by experiment stations and in actual cultivation. The *Benlloch* (or *Belloch*) variety is of undetermined origin and very little is known here concerning it. It was introduced and distributed to farmers by the agricultural experiment station at Burjasot, near Valencia (Granja Escuela práctica de Agricultura de Valencia). It was easily and quickly domesticated and appears to be peculiarly adapted to this soil. It germinates quickly in the seed bed and stands transplanting according to the usual practice in this region. The grain gives a large percentage of rice flour in milling and the straw is firm and remains sound from beginning to end. One disadvantage is that it matures somewhat later than other varieties. It is also said to be inferior in food value to the *Bomba* variety. The yield of *Benlloch* rice in 1913 was reported as being unusually high. In the municipal division of Villanueva de Castellon of the Ribera Alta of the Jucar River many fields produced 900 kilos per hanegada (10,800 kilos per hectare, or about 9,620 pounds per acre). Some fields gave even better results, reaching 1,000 kilos per hanegada (12,000 kilos to the hectare, or 10,688 pounds to the acre). According to report, this rice was sold at an average price of 27 pesetas per 100 kilos ($4.86 per 220 pounds) on the thrashing floor. It is this wonderful productivity which has popularized the *Benlloch* variety, since it is to this condition more than the class that all the work and hopes of the Valencia rice cultivator are subordinate." (Extract from *Mr. Dawson's letter dated Apr. 25, 1914*.)

38687 to 38693.

From Russia. Secured by Mr. E. Brown, of the Bureau of Plant Industry. Received July 3, 1914. Quoted notes by Mr. Brown, except as otherwise indicated.

38687 to 38691.

From Ekatarinodar, Kuban Government, Russia. Secured from Mr. A. N. Rockel.

38687. TRITICUM AESTIVUM L. Poaceæ. **Winter wheat.**
(*Triticum vulgare* Vill.)

"No. 1. Best yielding variety in the Kuban district, from 30 to 60 bushels per acre. Seeded at the rate of 1½ bushels per acre from August till November." (*Rockel.*)

38688. HORDEUM DISTICHON NUTANS Schubl. Poaceæ. **Winter barley.**

"No. 2. Seeded September to November in the south and August to September in the north; yield 50 to 80 bushels per acre." (*Rockel.*)

38689. BRASSICA ALBA (L.) Boiss. Brassicaceæ. **Yellow mustard.**

"No. 4. Gives two crops in summer. Seeded in February to March High oil content." (*Rockel.*)

38690 and 38691. ZEA MAYS L. Poaceæ. **Corn.**

38690. "No. 5. One of the small early types (*Cinquantino*) of flint corn raised in the Kuban district."

38691. "No. 6. One of the small early types (*Cinquantino*) of flint corn, called *Perl*, raised in the Kuban district."

38687 to 38693—Continued. (Quoted notes by Mr. E. Brown.)

38692 and 38693.

From the estate of A. Vassal, "Klarofskoy," Nogais Steppe, Government of Taurida, Russia.

38692. SECALE CEREALE L. Poaceæ. **Winter rye.**

"No. 7. This is the best variety grown in the region."

38693. AVENA SATIVA L. Poaceæ. **Oats.**

"No. 8. This is the best variety grown in the region."

38694. ANNONA CHERIMOLA Miller. Annonaceæ. **Cherimoya.**

From Mexico. Presented by Mr. Charles F. O'Brien, Los Angeles, Cal. Received at the Plant Introduction Field Station, Chico, Cal., May, 1914.

"Seeds from a very choice variety of Mexican cherimoya, grown in the mountains east of Culiacan, Sinaloa." (*O'Brien.*)

38695. ARAUCARIA ARAUCANA (Mol.) Koch. Pinaceæ. **Pehuen.**

From Barbacena, Minas Geraes, Brazil. Presented by Mr. Frank R. Brainerd, Experiment Station. Received July 8, 1914.

"An evergreen tree, 50 to 80 feet high, of pyramidal or rounded form, with an erect cylindrical bole, 1½ to 2½ feet thick, all but the oldest parts prickly with living leaves or the remains of dead ones. Branches produced in regular tiers of five to seven. Leaves very uniform, ovate, with a slender spine-tipped point, from 1 to 2 inches long, one-half to 1 inch wide; hard, rigid, and leathery; dark glossy green except at the paler growing tips of the branches, and with numerous stomatic lines on both surfaces. The leaves are arranged spirally on the branch, overlapping at the broad, stalkless base, and are very densely packed (about 24 to 1 inch of stem); they remain alive for 10 to 15 years, and then persist for an indefinite time dead. Male and female flowers are usually borne on separate trees, but not invariably; the former are produced on egg-shaped or cylindrical catkins 3 to 5 inches long, the scales lanceolate, densely packed, with the slender points reflexed, the pollen being shed in early July. The female cones take two seasons to develop, appearing in the spring of one year and shedding their seeds in August or September of the next; they are globose, and usually 5 to 7 inches thick. Seeds conical, 1½ inches long, three-fourths inch wide.

"Native of Chile; originally discovered about 1780, and introduced to England by Archibald Menzies in 1795. Menzies had, two or three years previously, when attached to Vancouver's voyage of survey, pocketed some nuts put on for dessert whilst he and the ship's officers were dining with the Viceroy of Chile. He sowed these nuts on board ship, and ultimately landed five plants, which proved to be the Araucaria, alive in England. One of the five existed at Kew until 1892. The Chile pine, whilst hardy in most parts of the British Isles, attains its finest development in the softer, moister counties, and in good free soil. It should always be raised from seeds, fertile ones of which are now regularly produced in several gardens. At Castle Kennedy I have seen seedling plants springing up naturally near the trees from which seeds had fallen. *Araucaria imbricata* is of peculiar interest as the only tree from the south of the Equator that attains to timber-producing size in the average climate of the British Isles. It becomes over 100 feet high and 7 feet in diameter of trunk in Chile, deriving its name from the Arauco Province (inhabited by the Araucanos Indians), where it was first found. A species is

38695—Continued.

found in Brazil, and several others in Australia and New Caledonia—all tender. In its general aspect, and especially as compared with the ordinary types of northern vegetation, the Chile pine is the most remarkable hardy tree ever introduced to Britain. It should always be grown as an isolated tree, or in an isolated group, as it associates very badly with ordinary garden vegetation. It was first introduced in quantity to this country [England] in 1844 by Wm. Lobb." (*W. J. Bean, Trees and Shrubs in the British Isles, vol. 1, p. 199,* under *Araucaria imbricata.*)

38696 to 38698.

From Port Louis, Mauritius. Presented by Mr. G. Regnard. Received July 9, 1914. Quoted notes by Mr. Regnard.

38696. LINOMA ALBA (Bory) O. F. Cook. Phœnicaceæ. **Mascarene cabbage palm.**

"A palm that attains a height of 50 feet. Young plants have dark-red margins on new leaves, which diminish when the tree becomes older. This true red variety is getting very scarce now, as almost all the trees newly planted are a cross mixture with the white. These seeds were gathered on the true red sort in a wide plantation of them. The cabbage of this palm is commonly eaten here and has quite a delicate flavor."

For a discussion of this Mascarene cabbage palm, see the Journal of the Washington Academy of Sciences, vol. 7, p. 123, 1917.

38697. HYOPHORBE AMARICAULIS Martius. Phœnicaceæ. **Palm.**

"Said to grow 60 feet, though I have never seen it over 30 feet. This palm is very common in Round Island and has spread now in Mauritius, where it is planted as a curious ornamental plant only. Trunk bottle shaped."

38698. KIGELIA PINNATA (Jacq.) DC. Bignoniaceæ.

"The sausage tree, called by the natives here *Calabasse d'Amerique,* though a spreading tree of tropical Africa. The quite heavy and large fruit, 20 inches and over, sometimes 4 feet, are produced on very long cordlike stalks, thus hanging in the air, where they dangle for several weeks. This tree is held sacred by the savage tribes of Nubia. The wood is very hard and durable and easily worked."

38699 to 38707. OPUNTIA spp. Cactaceæ. Prickly-pear.

From Nice, France. Presented by M. Robert Roland Gosselin, through Mr. William Dulany Hunter, American consul, Nice. Received July 10, 1914.

Cuttings introduced at the request of Dr. David Griffiths for his work in monographing the genus Opuntia in connection with studies of its forage value.

38699. OPUNTIA SPINULIFERA Salm-Dyck.

See S. P. I. No. 33335 for previous introduction.

38700. OPUNTIA FICUS-INDICA (L.) Miller.

Var. *costaricensis.*

38701. OPUNTIA DECUMANA (Willd.) Haw.

See S. P. I. No. 8916 for previous introduction.

38699 to 38707—Continued.

38702. OPUNTIA GYMNOCARPA Weber (?).

These cuttings were received under the name *Opuntia cafayatensis.*

38703. OPUNTIA CAMUESSA Weber.

See S. P. I. No. 33334 for previous introduction.

38704. OPUNTIA ROBUSTA LARREYI Weber.

See S. P. I. No. 33328 for previous introduction.

38705. OPUNTIA sp.

38706. OPUNTIA GYMNOCARPA Weber.

See S. P. I. No. 33329 for previous introduction.

38707. OPUNTIA STREPTACANTHA Lem.

See S. P. I. No. 33327 for previous introduction.

38708. CLAUCENA LANSIUM (Lour.) Skeels. Rutaceæ. **Wampi.**
(*Clausena wampi* Oliver.)

From Honolulu, Hawaii. Presented by Mr. E. V. Wilcox, Hawaii Experiment Station. Received July 9, 1914.

"These seeds were kindly donated to the station by Mr. A. J. Campbell, of Honolulu, who has a wampi tree which bears a heavy crop of excellent fruit." (*Wilcox.*)

"A low, spineless tree, with spreading branches; leaves spirally arranged, pinnate; leaflets 5 to 9, ovate elliptical, 3 to 5 inches long, petiolate, light green, shiny above; flowers 4 to 5 parted, small, white, in large terminal panicles; ovary villous, 5-celled, with 1 ovule in each cell; style short; stamens 10; fruit ovate globose, about 1 inch long; skin glandular, pubescent; seeds green. The wampi is a native of southern China, where it is commonly grown for its fruits. It is cultivated to some extent in Hawaii and could probably be grown in the warmer parts of Florida and California. It can be grafted on grapefruit and other species of Citrus, which makes it desirable to test it as a stock for common citrous fruits. (*W. T. Swingle. In Bailey, Standard Cyclopedia of Horticulture.*)

38709 to 38731.

From Angeles National Forest, Cal. Presented by the Forest Service, Department of Agriculture, Washington, D. C., on the conclusion of eucalyptus planting in the national forests. Notes adapted from A. J. McClatchie, Eucalypts Cultivated in the United States, Bulletin 35, Bureau of Forestry, are given abridged credits, with page citations.

Most, if not all, of this seed was collected from California-grown trees.

38709 to 38730. EUCALYPTUS spp. Myrtaceæ.

38709. EUCALYPTUS ALPINA Lindley. **Alpine gum.**

This tree, which is commonly known as the *Alpine gum*, is a small evergreen tree which reaches a height of 10 or 15 feet. The flowers are sessile in the leaf axils, and solitary or few. They are white in color. This rare and interesting alpine species might possibly do well for street planting. (Adapted from *W. R. Guilfoyle, Australian Plants*, and *Bailey, Cyclopedia of American Horticulture.*)

38709 to 38731—Continued.

38710. Eucalyptus bicolor A. Cunningh. **Cooburn.**

"This species is found growing in south Australia and eastern Australia to the Gulf of Carpentaria. This tree has a variety of local names, some of which are *Cooburn, box, black box, yellow box, bastard box*, and *grey gum*. It is also called *slaty gum*, from the gray and white patches on the bark.

"The timber is hard and durable, very lasting underground, and of a red color. It is used for fencing, rough buildings, and sleepers, also for shafts, poles, and cogs. It is more easily worked than the generality of ironbarks. The large trees are frequently hollowed and decayed at heart. This tree attains a height of between 100 and 120 feet and a basal diameter of 24 to 36 inches." (*Maiden, Useful Native Plants of Australia, p. 471*, under *E. largiflorens.*)

38711. Eucalyptus citriodora Hook. **Lemon-scented gum.**

This is a handsome, fast-growing tree, soon becoming tall and slender. In favorable situations in the Southwest it attains a height of 60 to 100 feet in 10 to 15 years. The trunk is straight and even, the foliage being confined mostly to the lofty summit. The bark is light colored, faintly mottled by indentations that indicate where thin patches have flaked off. This mottling of the trunk, together with the stately character of the tree, the graceful foliage, the profuse bloom, and the fragrant leaves make this eucalypt one of the most attractive of the genus. The leaves of the tree are long, quite narrow, and equally shiny green on both sides. The foliage possesses a pleasant odor, closely resembling that of a lemon, giving the tree its varietal name *citriodora*. The tree thrives in the frostless coast regions, but is not suited to the dry interior valleys. It is especially sensitive to low temperatures. The wood is of a grayish, brownish, or yellowish tint, flexible, strong, and durable. The timber is used for fencing, implement handles, shipbuilding, paving, railway ties, bridge building, carriage making, and for the manufacture of railway coaches in Australia. The great value of this wood is due to its strength, elasticity, and beauty. Its profuse bloom makes it valuable also for bee pasture. (*McClatchie, p. 54, 55.*)

38712. Eucalyptus pauciflora Sieber. **White gum.**

This tree is of medium size; rarely exceeds 75 feet in height and 3 feet in diameter. It is a stately and quite handsome tree. The main branches are usually spreading and the smaller branches drooping. The bark is smooth and grayish. The leaves are shiny, the same color on both sides, and quite thick. The medium-sized flowers are in compact clusters. The shape of the fruits is that of the broader part of an egg. The tree does best in regions of moderate temperatures a short distance from the coast. It is resistant to frost. In Australia it grows from the base to near the top of the highest mountains. It will not endure drought nor a hot, dry atmosphere, though supplied with plenty of water artificially. The timber is comparatively soft, splits fairly well, but is rather brittle. It is not useful for underground purposes, but makes a good fuel. (*McClatchie, p. 55*, under *E. coriacea.*)

38709 to 38731—Continued.

38713. Eucalyptus cladocalyx F. Muell. **Sugar gum.**
(*Eucalyptus corynocalyx* F. Muell.)

This tree attains a fair size and is commonly symmetrical and erect. Its growth is quite rapid from an early age. The usual height ranges from 50 to 100 feet, and in Australia the trunk is said to often attain a diameter of 5 or 6 feet. As a rule the trunk is straight, with only a slight taper. The bark is left smooth by the continuous flaking off of the patches or strips. The bark of the main stem is usually a deep cream color, that of the branches darker before shedding, and of the young twigs quite red. This Eucalyptus furnishes a timber that is very durable as railway ties, as posts, and for other underground situations. The wood warps very little in drying and when dry is very hard. It is also useful for the naves and felloes of wheels. (*McClatchie, p. 57, 58.*)

38714. Eucalyptus viminalis Labill. **Manna gum.**

Both in Australia and in the Southwest the individuals of this species make rapid growth and commonly become trees of large size. Those growing in the Southwest give promise of eventually attaining a height of 300 feet and a trunk diameter of 15 to 30 feet. The surface of the bark varies considerably in appearance. That of the trunk and main branches is commonly persistent, but from some trees long, slender strips are shed, leaving the trunk smooth and of a greenish or reddish creamy color. The persistent bark is brownish in color, furrowed and rough. This bark has the peculiar characteristic of exuding a honeylike substance, called 'lerp' by the natives, but better known as 'manna,' when the bark is punctured or wounded by insects. This Eucalyptus grows under quite a variety of climatic conditions. In the Southwest it thrives near the coast, on dry mesas, in the elevated valleys of the interior, and in the hot valleys of much of the desert region. The timber of this tree is less valuable than most of the eucalypts. It is not durable under ground and does not make good fuel. In Australia it is used for shingles and for rough building material. The tree can be grown for a forest cover, for windbreaks, for fuel, and for shade in many localities where species producing a better timber will not grow. (*McClatchie, p. 82, 83.*)

38715. Eucalyptus globulus Labill. **Blue gum.**

This species is the best known of the eucalypts and in many respects the best known tree in all the world. It is the third tallest of the species of Eucalyptus, the usual height in Australia being 200 to 300 feet. In California, where trees can be found 30 or more years old, many have attained the height of 150 feet, and a diameter of 3 to 6 feet during these years. This remarkable tree has the power of adapting itself to a variety of climatic conditions. It thrives both in moist, warm regions, and in quite hot, dry ones. It makes a good growth both in low lands and in dry, stony uplands. This species is the most generally useful of all the eucalypts. The timber of this tree is of a rather pale color, is hard, heavy, and very strong and durable. It is fairly straight grained and splits easily. In Australia it is used for shipbuilding, for carriage making, and in the manufacture of agricultural implements. It is also used in

38709 to 38731—Continued.

bridge building, for telegraph poles, and for railway ties. It is also the one that is used principally in the manufacture of eucalyptus oil in California. (*McClatchie, p. 61–63.*)

38716. EUCALYPTUS GONIOCALYX F. Muell. **Mountain spotted gum.**

This tree commonly attains a good size, in some situations in Australia reaching a height of 300 feet, with a diameter of 6 to 10 feet. The leaves of the adult tree are long and quite slender, the two sides being similarly colored. The flowers are nearly stemless, in small clusters borne on flattened stalks. This species grows well in the coast regions of California, but so far as known has not been tested in the dry, hot valleys of the interior, or other similar situations. In Australia it ascends to elevations of 4,000 feet, and is therefore a promising species for the mountains of the Southwest. The tree furnishes a hard, tough wood used by wheelwrights, by boat builders, and for general building purposes. It is very durable in the ground and is consequently useful for railroad ties, for posts, and for other purposes in underground situations. It also makes an excellent fuel. (*McClatchie, p. 63, 64.*)

38717. EUCALYPTUS GOMPHOCEPHALA DC. **Tooart tree.**

The tree is rather stocky and is usually symmetrical. The bark of the trunk is dark gray, rough, and persistent. From the branches the bark flakes off in strips, leaving the surface smooth and light colored. The twigs are reddish yellow. The leaves are thick and shining and somewhat leathery, the upper surface being darker than the lower. The flowers are of large size. This tree thrives along the coast and does fairly well in the dry, interior valleys. It has not been grown extensively enough yet to determine what degrees of heat and cold it will endure in America. The tree furnishes a heavy wood that is very tough and strong. It is one of the strongest timbers in the world. The grain is so close and curled or twisted that it is not easily split. The timber is used principally in shipbuilding and for bridges. It is very durable in all kinds of weather and in a great variety of situations. (*McClatchie, p. 63.*)

38718. EUCALYPTUS LEUCOXYLON F. Muell. **White ironbark.**

Trees of this species attain fair size in a comparatively short time and when full grown are large. They are apt to grow out of the perpendicular, and the trunks are frequently crooked. The wood is white and straight grained. The foliage has a pleasing bluish cast and is well distributed over the tree. The leaves of the young seedlings are broad, opposite, stemless, or short stemmed. This tree will grow in a greater variety of climates than most eucalypts; in fact, there are few situations in the Southwest in which it will not thrive. It grows vigorously on the coast, on the interior plains and foothills, and in the dry, hot desert valleys of the interior. On account of its adaptability to so great a variety of climatic conditions, it can be used as a forest cover for almost all kinds of situations and thus supply a timber useful for a large number of purposes. It can be grown for fuel and for other purposes that the ordinary blue gum serves where the latter will not grow. (*McClatchie, p. 66.*)

38709 to 38731—Continued.

38719. EUCALYPTUS MACRORHYNCHA F. Muell. **Victoria stringy bark.**

This tree is said to attain a fair height in Australia, but the specimens growing in the Southwest do not yet give promise of attaining great size, due probably to being planted at too low an elevation. The tree has not proved to be a very symmetrical one. The bark of the trunk and branches is thick, fibrous, and persistent, usually a dark-gray color. This species thrives at the coast, and is said to grow in Australia on comparatively sterile mountain ranges. It is, in Australia, essentially a mountain species, seldom growing on the plains. It will not endure dry, hot climates. The bark of the tree being rough and fibrous, it is used extensively in Australia for roofing sheds, stables, and other outbuildings. The fibers are also sometimes used for strings. The tree furnishes a wood that is hard and durable and easily split. It is useful for lumber, for fencing, and for shingles and fuel. The tree is a promising one as a forest cover for mountain ranges of the Southwest. (*McClatchie, p. 67.*)

38720. EUCALYPTUS OBLIQUA L'Herit. **Stringy bark.**

This is a tall, straight-stemmed tree, sometimes attaining a height of 300 feet in Australia, with a stem diameter of 10 feet. The bark is fibrous and persistent on both the trunk and the branches, being of a somewhat grayish color. The leaves of the young trees are commonly broad, but they become narrower as the tree increases in age. This species grows fairly well at or near the coast, doing best, however, some distance inland, but it does not thrive in the dry, hot valleys of the interior. It will thrive in light, barren soils, but does not endure severe drought. The timber of this species is straight and easily split. In Australia this tree furnishes much of the hardwood lumber used for rough building purposes. It is also used extensively for fence rails, palings, and shingles. The bark has been used for paper making. (*McClatchie, p. 70.*)

38721. EUCALYPTUS PIPERITA Smith. **Peppermint stringy bark.**

The trees of this species attain a considerable height and are commonly erect and shapely. The grayish bark of the trunk is fibrous and persistent. The leaves of the adult tree vary in shape from a broad lance shape and very unequally sided to a narrow lance shape and quite straight leaf. The flowers are about medium size, in compact clusters of 6 to 12. The tree makes a fairly rapid growth near the coast and in cool inland situations, but does not endure dry, hot climates, and will not tolerate heavy frosts. The timber is readily split and is used for fencing and general building purposes. It is one of the species eligible for planting as a forest cover on mountain sides where it is not too dry nor subject to too heavy frosts. (*McClatchie, p. 72, 73.*)

38722. EUCALYPTUS POLYANTHEMOS Schauer. **Red box.**

This is commonly a medium-sized tree, although it is said occasionally to reach a height of 250 feet in Australia. It is not a rapid grower, and few of the American specimens have attained a diameter of over 1 foot. It commonly sends up a single trunk, but quite frequently several stems arise from the same base. The tree is of a spreading habit, and with its characteristic foliage and profuse

8709 to 38731—Continued.

bloom presents a very pleasing appearance. The bark of the trunk and branches is persistent, somewhat furrowed, and grayish in color. This species thrives under a great variety of climatic conditions. It grows at and near the coast, in the foothills, on the mountain sides, and in the hot, dry valleys of the interior. The timber of this tree is very hard, strong, and durable, being used in Australia for railroad ties, for cogs, and for the parts of wheels. It also makes an excellent fuel. Its habit of growth and pleasing aspect render it a good shade tree. It can also be used as a windbreak in localities where faster growing trees will not endure the climatic conditions. (*McClatchie, p. 73.*)

38723. EUCALYPTUS AMYGDALINA Labill. **Peppermint gum.**

In its native country the individuals of this species are the tallest of the genus. This eucalyptus is one of the most remarkable and important of all plants. Viewed in its marvelous height when standing forth in its fullest development on the slopes or within glens of mountain forests, it represents probably the tallest of all the trees of the globe. Considered as a hardwood tree of celerity in growth, it ranks among the very foremost. The tree endures low temperatures, but is injured by dry heat. It does best near the coast and at moderate elevations in well-watered mountain regions. The timber is not as valuable as that of many other eucalypts, but is said to be useful for shingles, rails, and for planking ships. It is comparatively light, unlike many other eucalypts, floating on water. It does not usually last well underground, nor does it furnish fuel of good quality. The leaves are a source of eucalyptus oil. (*McClatchie, p. 51, 52.*)

38724. EUCALYPTUS RESINIFERA Smith. **Kino eucalypt.**

This is a tree of fair size, when full grown, reaching a height of 100 feet. It is usually erect and symmetrical. The bark of the trunk is dark reddish, fibrous, and persistent, resembling considerably that of the stringy barks. The bark of the branches is more or less deciduous. The wood is a rich red color, resembling true mahogany, and is very heavy. This Eucalyptus, known as the red mahogany, grows quite well in the coast regions of California, but does not thrive in the dry interior valleys. It does not resist severe frosts, nor does it endure high temperatures in a dry atmosphere. The tree furnishes a timber that is very strong, hard, and durable. It is used in Australia for piles, posts, paving, shingles, and general building purposes. (*McClatchie, p. 74, 75.*)

38725. EUCALYPTUS LONGIROSTRIS Muell. **Red gum.**
(*Eucalyptus rostrata* Schlecht.)

Individuals of this species make a fairly rapid growth and are commonly above medium size. The tree varies considerably in habit and appearance, in some cases being erect and stately and in other cases unsymmetrical and irregular in growth. This red gum is one of the leading forest trees of the Australian continent. The tree is commonly about 100 feet high in Australia, but is reported under favorable circumstances to grow to double that height, with a trunk diameter of 6 to 12 feet. The red gum grows under a great variety

38709 to 38731—Continued.

of climatic conditions. It is scattered over the southeastern part of Australia, growing there in a great variety of situations. While it prefers moist river bottoms with an equable climate, it will endure much heat, severe frosts, and considerable drought. The red gum furnishes a timber that is very valuable for many purposes. When freshly cut the wood is a rich red color that grows darker as it is exposed to the air. It is close grained, the fibers being interlocked, thus rendering it quite difficult to split. In America the principal uses made of the red gum have been for fuel and for posts. On account of its profuse bloom it is a good honey-yielding tree, both in Australia and in America. (*McClatchie, p. 76, 77.*)

38726. EUCALYPTUS SIDEROXYLON A. Cunningh. **Red ironbark.**

The red ironbark is a tree of medium to large size. It usually grows erect, with an even trunk, having numerous side branches, especially toward the top. It never grows to a great height. The bark is the hardest and the darkest of the ironbarks, the color usually being a dark red or brown. It is furrowed and cracked and studded with beads of the kino that exudes from it. The whole appearance of the tree, with its rough, dark bark, its silvery narrow leaves, and daintily colored flowers, is quite distinctive, contrasting strongly with the smooth-barked broader leaved species of the genus. The wood is dark red, very hard, and heavy. The leaves are narrow lance shaped, often curved, and usually have a more or less evident silvery surface. The red ironbark is one of the very useful eucalypts. While the timber is not prized as highly in Australia as that of other ironbarks, it is nevertheless valuable for many purposes. Its principal use is for bridge construction, for railway ties, for girders and large beams in building, for joists, for posts, for the hubs, spokes, and shafts of vehicles, and for a great variety of other purposes where strength and durability are required. (*McClatchie, p. 80.*)

38727. EUCALYPTUS VIRGATA Sieber.

This is an erect shrub or a small tree with smooth or slightly ribbony bark and pale-colored wood, and it is found along the eastern coast of New South Wales, Australia. The mature leaves are lance shaped, generally about 4 inches long, of a thick, very coriaceous texture, and equally green and shining on both sides. The flowers occur usually six in each head, and the nearly globular fruits are about half an inch in diameter. The timber from this eucalypt is of an inferior quality. A singular fact about this eucalypt is that it does not seem to have any distinctive native name, being usually called *scrubby gum*, a name also applied to many other species. (Adapted from *J. H. Maiden, Forest Flora of New South Wales, vol. 3, p. 85–89, pl. 94.*)

38728. EUCALYPTUS TERETICORNIS Smith. **Flooded gum.**

This tree attains a good size under favorable conditions, but it is commonly not much above 100 feet in height and 6 feet in diameter in Australia. In the Southwest it makes a rapid growth and gives promise of reaching fully the size the trees do in their home. The species thrives under a variety of climatic conditions.

38709 to 38731—Continued.

It grows best near the coast but endures the dry heat of the interior valleys. The trees of this species furnish an excellent red-colored timber that is very hard, heavy, and durable. It is used for general building purposes, for shipbuilding, for wheelwright work, for railroad ties, for telegraph poles, posts, fencing, and fuel. (*McClatchie, p. 81, 82.*)

38729. EUCALYPTUS VIMINALIS Labill. **Manna gum.**

See S. P. I. No. 38714 for previous introduction and description.

38730. EUCALYPTUS MUELLERIANA Howitt. **Yellow stringy bark.**

"This is perhaps only a variety of *E. pilularis;* bark more fibrous or stringy, the inner bark yellow and imparting a yellow stain to the wood; juvenile leaves often with tufts of hairs; adult leaves glossy above; lid blunt or slightly pointed; fruit typically one-half inch thick." (*H. M. Hall. In Bailey, Standard Cyclopedia of Horticulture.*)

38731. SYNCARPIA GLOMULIFERA (Smith) Niedenzu. Myrtaceæ.
(*Syncarpia laurifolia* Ten.) **Burra murra.**

"This tree, which is a native of Queensland and New South Wales, is locally known as the *turpentine tree.* It attains a height of 200 feet and a stem girth of 30 feet. It is a quick grower and well adapted for shading roadsides. The wood is very durable and is mostly used for flooring and for cabinetmaking, as it takes a high polish. It is one of the most valuable known timbers for piles in salt or fresh water. It is also used in the construction of railway sleepers, in shipbuilding, and for other purposes where a strong, durable wood is required. The wood is almost fireproof." (*Mueller, Select Extra-Tropical Plants, p. 521.*)

38732. PENNISETUM GLAUCUM (L.) R. Brown. Poaceæ.
(*Pennisetum typhoideum* Rich.) **Pearl millet.**

From Lusambo, Belgian Kongo, Africa. Presented by Mr. J. A. Stockwell. Received July 10, 1914.

African millet.

38733 to 38741.

From Darjiling, India. Collected by Mr. L. J. Mackintosh, Clover Cot, at the request of Mr. J. F. Rock, collaborator of the Bureau of Plant Industry.

38733. ABIES SPECTABILIS Lambert. Pinaceæ. **Fir.**
(*Abies webbiana* Lindl.)

"A lofty evergreen tree, met with in the Himalayas from the Indus to Bhutan; in the northwest Himalayas between 7,000 and 13,000 feet; in the inner ranges of Sikkim and Bhutan, between 9,000 and 13,000 feet; and in the outer ranges not below 10,000 feet. This tree yields a white resin which is sometimes medicinally used in India. The resin, mixed with oil of roses, when taken internally produces intoxication. This mixture is used externally for headaches, neuralgia, etc. The timber made from this tree is not durable when exposed to the weather, but seems

38733 to 38741—Continued.

to last well in the form of shingles in Sikkim, whence it is sometimes exported to Tibet for roofing. At Murree shingles are said to last 8 to 10 years and at Kulu 3 to 6 years. It is also much used for construction purposes. Very little information exists regarding the rapidity of its growth. The bark is used for roofing shepherds' huts, and it is also made into troughs for the salt given to the sheep grazing on the high Himalayas." (*Watt, Dictionary of the Economic Products of India, vol. 1, p. 5.*)

38734. ACER HOOKERI Miq. Aceraceæ. **Maple.**

"This species, which is a native of the eastern temperate Himalayas, is found growing at altitudes of 8,000 to 10,000 feet around Sikkim and Bhutan. Plants with copper-colored foliage are not uncommon around Darjiling. This tree attains a height of 40 to 50 feet." (*Watt, Dictionary of the Economic Products of India, vol. 1, p. 69.*)

38735. ALBIZZIA CHINENSIS (Osbeck) Merrill. Mimosaceæ.
(*Albizzia stipulata* Boiv.)

See S. P. I. No. 25782 for previous introduction.

Concerning this plant, Watt (*Commercial Products of India*), under *A. stipulata*, says: "All Indian species afford gum, more or less copiously, from wounds on the stem, and though little is known for certain of the specific differences of these gums, that of *A. stipulata* is reputed to be especially valued as a size in the manufacture of Nepal paper. The bark is said to be a fish poison; the leaves of most species are regarded as useful fodders, and in some instances the trees are specially grown on that account, but, according to Mr. Hartless, the stipules and young leaves of this species are poisonous to cattle. The timber is very soft. By far the greatest interest in the species of Albizzia centers in this species, which is now very extensively grown as a shade tree for tea both in Assam and Darjiling. It is known as the *sau* in the former Province and the *kala-siris* in the latter. Its chief value turns on the nitrating warts formed on its roots."

38736. DENDROCALAMUS HAMILTONII Nees and Arn. Poaceæ. **Bamboo.**

"A common bamboo in the eastern Himalayas from Kumaon to Assam. It is generally a tall grass, 40 to 60 feet in height, but sometimes found as a long and tangled bush. The young shoots are used as food, being boiled and eaten in Sikkim, Bhutan, and Assam. The halms are large, 3 to 6 inches in diameter, rather hollow, and not always straight, but they are used for every variety of purpose. The bamboo grows gregariously on hillsides up to 3,000 feet. This bamboo is used by some tea planters for shading their estates from the hot and violent winds. This bamboo flowers every year, which is not the case with all others of this genus." (*Watt, Dictionary of the Economic Products of India, vol. 3, p. 71.*)

38737. NYSSA SESSILIFLORA Hook. f. and Thoms. Cornaceæ.

"This is a large tree found in the forests of the Sikkim Himalayas above 5,000 feet; also in Martaban between 4,000 and 6,000. The wood is gray, soft, and even grained, and is used for house building and other purposes about Darjiling." (*Watt, Dictionary of the Economic Products of India, vol. 5, p. 438.*)

38738. QUERCUS sp. Fagaceæ. **Oak.**

38733 to 38741—Continued.

38739. Trachycarpus martiana (Wall.) Wendl. Phœnicaceæ. **Palm.**

"This species is found growing in the temperate Himalayas at altitudes of 6,000 to 8,000 feet, and from Nepal eastward to the Khasia Hills at altitudes of 4,000 to 5,000 feet. It is also found growing at Burma at altitudes between 6,000 and 6,500 feet. The trunk is 20 to 50 feet long and slender, clothed beneath the crown with persistent leaf sheaths. The younger parts are softly furfuraceously hairy. The leaves are 4 to 5 feet in diameter, subglaucous beneath, cut about half way down into linear two-lobed segments. The flowers are yellow, ovaries villous. Drupe 1 to 3½ inches long, dirty blue in color." (*Hooker, Flora of British India, vol. 6, p. 436.*)

38740. Terminalia tomentosa (Roxb.) Wight and Arn. Combretaceæ.

38741. (No. 17.) (Undetermined.)

38742 to 38751. Panax quinquefolium L. Araliaceæ. **Ginseng.**

(*Aralia quinquefolia* Decne. and Planch.)

From China. Presented by His Excellency Tsao Julin, twice Minister for Foreign Affairs, through Dr. Paul S. Reinsch, American minister, Peking, China; at the request of Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture.

See S. P. I. Nos. 37870 and 37871 for other varieties and for description.

Quoted notes by Tsao Julin.

38742. "Seeds of the wild ginseng from Linkianghsien."

38743. "Seeds of the wild ginseng from Kwantien. Located in Funghuang Subprefecture, Shengking Province. Latitude 40° 42′ N. and longitude 124° 49′ E."

38744. "Seeds of the cultivated ginseng from Kwantien."

38745. "Seeds of cultivated ginseng from Fushun. Located northeast of Mukden. Latitude 41° 53′ N. and longitude 123° 51′ E."

38746. "Seeds of cultivated ginseng from Chianhsien, located in Shengking Province, Manchuria, in Hsingking Subprefecture."

38747. "Seeds of cultivated ginseng."

38748. "Seeds of cultivated ginseng from Antuhsien."

38749. "Seeds of cultivated ginseng from Linkianghsien."

38750. "Seeds of cultivated ginseng from Tunghwahsien, located in Hsingking Subprefecture, Shengking Province, Manchuria, east of Mukden. Latitude 41° 37′ N. and longitude 128° 7′ E."

38751. "Seeds of cultivated ginseng from Fusung."

38752 to 38755. Oryza sativa L. Poaceæ. **Rice.**

From India. Presented by Mr. H. G. Carter, economic Botanist to the Botanical Survey of India, Indian Museum, Calcutta, India. Received July 3, 1914. Quoted notes by Mr. Carter.

38752. "(No. 35958, Bengal, India.) *Kalojira.* From the district agricultural officer, Mymensingh, Bengal Province."

38753. "(No. 36241, Bombay, India.) *Dhundhari.* From the district agricultural overseer, Broach, Bombay Province."

38752 to 38755—Continued. (Quoted notes by Mr. H. G. Carter.)

38754. "(No. 36249, Burma, India.) *Nakerijea.* From the deputy commissioner, Akyab, Burma Province."

38755. "(No. 36319, Hyderabad, India.) *Kamod.* From Hyderabad, Hyderabad Province."

38756. COLOCASIA ESCULENTA (L.) Schott. Araceæ. **Taro.**

From Honolulu, Hawaii. Presented by Mr. Gerrit P. Wilder, through Mr. Chester J. Hunn, assistant horticulturist, Hawaii Experiment Station. Received July 6, 1914.

Kai koi o Ewa.

38757. PSIDIUM CATTLEIANUM Sabine. Myrtaceæ. **Guava.**

From Santa Barbara, Cal. Presented by Mr. G. P. Rixford, San Francisco, Cal. Received at the Plant Introduction Field Station, Chico, Cal.

Var. *lucidum* Hort.

"Seed of a yellow guava, supposed to be a little hardier than the ordinary form." (*R. L. Beagles.*)

38758 and 38759.

From Kew, England. Presented by the director, Royal Botanic Gardens, Kew, England.

38758. ACACIA RETINODES Schlecht. Mimosaceæ. **Wirilda.**

This everflowering acacia is a native of Victoria and South Australia, where it grows along the river banks. It does well in moist places, but never grows beyond the size of a small tree, usually attaining a height of 20 to 25 feet. The wood is prettily grained, tough, and durable; furnishes a good gum arabic. (Adapted from *Maiden, Useful Native Plants of Australia*, and *Mueller, Select Extra-Tropical Plants.*)

38759. ESCALLONIA PTEROCLADON Hooker. Escalloniaceæ.

"A small, decidedly hardy, much-branched shrub, native of western Patagonia, 4 or 5 feet high, with spreading branches. It is a bushy plant with leaves like a small-leaved myrtle and abundant, very pretty, Epacrislike, fragrant flowers, white, tinged with red. The old wood is clothed with loose, cracked papyraceous bark and the branches are straight, rigid, singularly angled, and winged with vertical alæ (wings) which are sinuate and downy or fringed at the edge." (*Curtis's Botanical Magazine, pl. 4827.*)

38760. COTONEASTER FRIGIDA Wall. Malaceæ.

From Los Angeles, Cal. Seed collected by Mr. P. H. Dorsett, of the Bureau of Plant Industry, at Mr. Huntington's place, Los Angeles, Cal., November 11, 1911. Received at the Plant Introduction Field Station, Chico, Cal.

"A large, rounded, deciduous shrub, 15 to 20 feet high, or a small tree; branchlets at first covered with pale down, becoming smooth. Leaves 3 to 5 inches long, 1 to 2 inches wide, narrowly oval or obovate, deep dull green and smooth above, pale and very woolly beneath when young, becoming almost smooth by autumn. Flowers white, one-third of an inch across, produced very numerously in flattish corymbs 2 inches or more across, terminating in short,

38760—Continued.

leafy twigs; flower stalks very woolly. Fruits in large clusters, each fruit about the size of a pea, rich, bright red.

"Native of the Himalayas; introduced in 1824, and perhaps the most striking of all the cotoneasters. The splendid clusters of 'berries' wreathing the branches make some of the most brilliant pictures of autumn and early winter. Near London, owing to the attacks of birds, they disappear usually before Christmas, but in country places are occasionally seen hanging until February. The species is the most robust in the genus, making, if left to itself, a huge bush 20 feet high and as much through, consisting of numerous branching stems; but if kept to one stem when young, and the lower branches removed, it will make a pretty round-headed tree with a well-shaped trunk. There is a fine specimen of this kind in the Victoria Park at Bath whose trunk is 6 feet or so high and 1 foot or more thick. No hardy shrub more beautiful than this thrives in town gardens." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 409–410.*)

The wood of this small tree is attracting considerable attention in England as a source of wood for the manufacture of heads for golf sticks.

38761. PRUNUS SERRULATA SACHALINENSIS (Schmidt) Makino. (*Prunus sargentii* Rehder.) Amygdalaceæ. **Sargent's cherry.**

From Jamaica Plain, Mass. Presented by Dr. C. S. Sargent, Arnold Arboretum. Received July 6, 1914.

"This species is considered by Wilson valuable as a stock for the Japanese cherries." (*Sargent.*)

Distribution.—A large tree, often 75 feet high and 3 feet in diameter, found in Chosen (Korea) and the islands of Hokkaido, Hakodate, and Hondo, in Japan.

"A deciduous tree, 40 to 80 feet high, with a trunk sometimes 3 feet in diameter; young shoots smooth. Leaves obovate to oval, drawn out at the apex into a long, slender point, rounded, sometimes slightly heart-shaped at the base, sharply toothed, 2 to 4 inches long, about half as wide, quite smooth on both surfaces, often reddish when young; stalk smooth, one-half to 1 inch long, with a pair of glands near the blade. Bracts red, oblong, one-half inch long, edged with small glandular teeth. Flowers 1¼ to 1½ inches across, of a lovely deep blush color, produced two to six together in short-stalked umbels, each flower with a stalk 1 to 1½ inches long; petals obovate, notched at the broad apex; calyx tubular, with five ovate, pointed lobes one-fourth inch long, smooth and entire; stamens deep rose. Fruit a small black cherry, one-third inch wide.

"Native of Japan, introduced by Sargent to Kew in 1893. This splendid cherry, probably the finest of the true cherries as a timber tree, is also one of the most beautiful in its blossom. It flowers in April. The seeds germinate freely after lying dormant a year." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, 250–251,* under *P. sargentii.*)

38762. ANNONA MURICATA L. Annonaceæ. **Guanábana.**

From Guayaquil, Ecuador. Presented by Mr. Frederic W. Goding, American consul. Received July 10, 1914.

"*Guanábana*, a fruit growing wild throughout the coastal region of Ecuador, on a very large tree. Evidently it is closely related to the cherimoya." (*Goding.*)

38763. Belou marmelos (L.) Lyons. Rutaceæ. Bael.
(*Aegle marmelos* Correa.)

From Rangoon, Burma, India. Presented by Rev. William H. S. Hascall. Received July 14, 1914.

See S. P. I. Nos. 24450, 33094, and 38299 for previous introductions and description.

38764. Osmelia sp. (?) Flacourtiaceæ. Lubi lubi.

From Catanduanes, Philippine Islands. Presented by Mr. E. H. Koert, superintendent, Bicol Farm, through Mr. Paul Popenoe, Washington, D. C. Received July 9, 1914.

"Seeds of a plant which possesses high value for food both for man and beast. In its wild state it appears to prefer places rather heavily mulched." (*Koert.*)

38765 to 38776.

From Pretoria, Union of South Africa. Presented by Mr. I. B. Pole Evans, chief, Division of Botany, Department of Agriculture. Received July 2, 1914.

38765. Andropogon erianthoides F. Muell. Poaceæ. **Satin-top grass.**

See S. P. I. No. 19254 for previous introduction.

38766. Alloteropsis eckloniana (Nees) Hitchcock. Poaceæ. **Grass.**
(*Bluffia eckloniana* Nees.)

Distribution.—A compactly tufted perennial grass growing from 1 to 3 feet tall, found in the Kalahari region and in the vicinity of Durban in South Africa.

38767. Eragrostis curvula (Schrad.) Nees. Poaceæ. **Grass.**

See S. P. I. No. 21313 for previous introduction.

Distribution.—A densely tufted perennial grass with open, nodding panicles, growing about 2 feet high in the Kalahari region of South Africa and extending southward to the Cape of Good Hope.

38768. Eragrostis poa Stapf. Poaceæ. **Grass.**

Distribution.—A densely tufted perennial grass about 2 feet high, found in moist places in the Caledon division of the coast region and in Bechuanaland in the Kalahari region of South Africa.

38769. Fingerhuthia africana Lehm. Poaceæ. **Grass.**

Distribution.—A densely tufted grass resembling timothy in habit and appearance, found in Little Namaqualand, in the Kalahari region and in the Transvaal in South Africa.

38770. Ischaemum glaucostachyum Stapf. Poaceæ. **Grass.**

Distribution.—A slender perennial grass growing about 3 feet high, found along the Pinaars River in the Transvaal, South Africa.

38771. Panicum maximum Jacq. Poaceæ. **Guinea grass.**

38772. Panicum nigropedatum Munro. Poaceæ.

Distribution.—A perennial grass growing 1 to 2½ feet high, found in the Kalahari region of Africa and northward to the upper Zambezi region.

38765 to 38776—Continued.

38773. CHAETOCHLOA AUREA (Hochst.) Hitchc. Poaceæ.
(*Setaria aurea* Hochst.)

Distribution.—A perennial grass growing 6 feet tall, with dense panicles covered with yellowish or bright orange bristles, found in the Kalahari region of South Africa and in tropical Africa and Asia.

38774. CHAETOCHLOA LINDENBERGIANA (Nees) Hitchc. Poaceæ.
(*Setaria lindenbergiana* Stapf.)

See S. P. I. No. 34817 for previous introduction.

38775. CHAETOCHLOA NIGRIROSTRIS (Nees) Skeels. Poaceæ.
(*Setaria nigrirostris* Dur. and Schinz.)

38776. CHAETOCHLOA SULCATA (Aubl.) Hitchc. Poaceæ.
(*Setaria sulcata* Raddi.)

38777. SOLANUM TUBEROSUM L. Solanaceæ. **Potato.**

From Lima, Peru. Procured from Señor J. A. MacKnight, director, Escuela Normal de Varenes. Received July 15, 1914.

38778. PRUNUS ARMENIACA L. Amygdalaceæ. **Apricot.**

From Somma Vesuviana. Presented by Dr. Gustav Eisen, Rome, Italy. Cuttings received July 17, 1914.

"*Pelcse* apricot. Size, large; slightly ovoid. Deep crease between the cheeks, one of which is larger than the other. Skin smooth, without spots. Color, orange chrome, with carmine flush. Seed medium, with a small projection or hump. Flesh very firm; ripens evenly all around and shows no unripe side. Flavor very fine. Sweetness medium (the specimen having been picked while unripe). Leaves pointed. I consider this apricot one of the finest, if not the finest, I have come across. It should be a splendid shipper, and if the sweetness is increased by allowing the fruit to ripen more, it should prove a very desirable table fruit, superior to the *Royal*. An average fruit displaced 53 c. c. water when immersed in a graduate." (*Eisen.*)

38779. LITCHI CHINENSIS Sonnerat. Sapindaceæ. **Litchi.**
(*Nephelium litchi* Cambess.)

From Honolulu, Hawaii. Presented by Mr. Chester J. Hunn, assistant horticulturist, Hawaii Agricultural Experiment Station. Received July 20, 1914.

"A small, bushy tree, with handsome dense foliage, native of China. It blossoms in the dry season (about February), producing sprays of pale-green flowers, and ripens its fruit about June. The fruit, produced in clusters, is of the size and form of a large plum, with a rough, thin, scalelike rind, which becomes of a beautiful red tinge, gradually turning to a dark-brown color before it is quite ripe. The jellylike pulp or aril which covers the seed is of a translucent whiteness and of an agreeable refreshing flavor. This fruit, represented by different varieties of varying quality, is grown to great perfection about Calcutta and elsewhere in India and is commonly sold in the bazaars when in season. Cameron says it thrives up to 3,500 feet in South India, giving at Bangalore two crops of fruit a year (in May and December). It is grown successfully in Mauritius, but curiously enough it is rarely met with in Ceylon,

38779—Continued.

though introduced here as early as 1802. The tree flourishes and produces fruit at Peradeniya, but the variety here grown is obviously an indifferent one. There are several varieties in cultivation, distinguished by size and shape of fruit, quality of pulp, and size of seed. Litchi fruits are dried and preserved in China and Cochin China, whence they are exported to Europe and America. Dried litchis are not unlike raisins, both in appearance and taste. The tree may be increased by seed, but budding or grafting should be adopted to propagate the best varieties." (*Macmillan, Handbook of Tropical Gardening and Planting.*)

For an illustration of the litchi tree as grown in California, see Plate I.

38780. HORDEUM VULGARE L. Poaceæ. **Barley.**

From Amoy, China. Presented by Mr. Lester Maynard, American consul. Received July 16, 1914.

38781 to 38844.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received July 10, 1914. Quoted notes by Mr. Meyer.

38781. OPHIOPOGON JAPONICUS (L. f.) Ker-Gawler. Liliaceæ.

"(No. 2112a. Tahuashan, Shensi, China. December 29, 1913.) A liliaceous herbaceous perennial, found in shady nooks on rocky places. Of value possibly in the hardy border in shady places."

38782. BRASSICA PEKINENSIS (Lour.) Skeels. Brassicaceæ. **Pe-tsai.**

"(No. 2052a. Tsaochowfu, Shantung, China. March 11, 1914.) A remarkably fine variety of winter pe-tsai, of very white color and possessing a mild, sweet flavor. Weighs up to 10 pounds apiece. Chinese name *Ta pai ts'ai*, meaning 'large white vegetable.' See former notes [S. P. I. No. 36113] as to cultivation."

38783. BRASSICA NAPIFORMIS (Paill. and Bois) Bailey. Brassicaceæ. **Turnip-rooted Chinese cabbage.**

"(No. 2053a. Village of Tachungko, near Taianfu, Shantung, China. March 21, 1914.)"

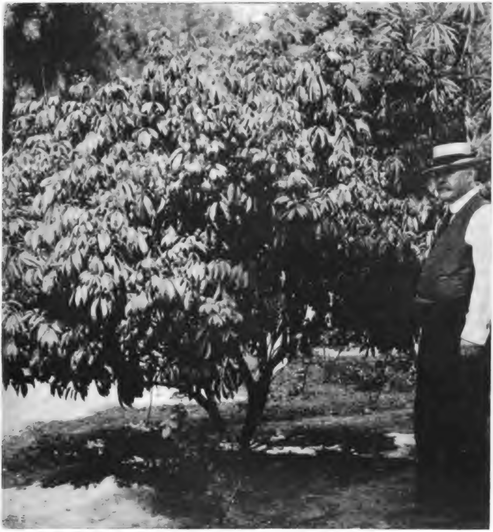
38784 and 38785. RAPHANUS SATIVUS L. Brassicaceæ. **Radish.**

38784. "(No. 2054a. Sianfu, Shensi, China. January 30, 1914.) A Chinese winter radish of a beautiful bright red color; shape round and flattened; size medium large. A very attractive-looking winter vegetable. Chinese name *T'ieh hung tan lo po*, meaning 'iron-red ball root.'"

38785. "(No. 2055a. Sianfu, Shensi, China. January 30, 1914.) A variety of Chinese early summer radish of bright red color and of elongated shape. Can be eaten fresh or stewed. Chinese name *Yeh chi hung shui lo po*, meaning 'wild-pheasant red-winter root.'"

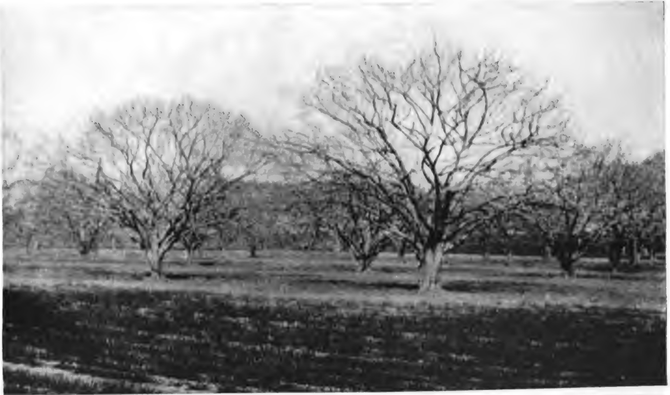
38786. DAUCUS CAROTA L. Apiaceæ. **Carrot.**

"(No. 2056a. Sianfu, Shensi, China. January 30, 1914.) A long, blood-red carrot. Of special value for pickling purposes on account of its attractive color. Thrives best on deep, rich, sandy soils which retain moisture well. Chinese name *Hung t'iao lo po*, meaning 'red-stick root.'"



THE FIRST CHINESE LITCHI TREE (LITCHI CHINENSIS SONNERAT) TO FRUIT IN THE UNITED STATES. (SEE S. P. I. NO. 38779.)

Although the famous Afong litchi tree has borne more or less regularly in Honolulu for the past twenty years, most of the attempts which have been made to grow this species in California and Florida have failed. This illustration, according to Mr. Hadley, shows a seedling introduced by Reasoner Bros., of Oneco, Fla., now growing on the Hadley place in Santa Barbara, Cal. It was 9 feet high and had a spread of 13½ feet at the time the photograph here reproduced was taken, October 28, 1914. In 1914 it bore and ripened several fruits. In 1915 it bloomed but failed to fruit. It was not injured by the freeze of 1913, although to just how low temperatures it was subjected is not known. A report from India indicates that 21° F. will injure the foliage, whereas a similar report from South China is to the effect that 24° F. injured large trees severely. The freeze of February 3, 1917 (temperature 26° F.), at Miami, Fla., killed 10-year-old trees nearly to the ground. (Photographed by Wilson Popenoe, October 28, 1914; P16216FS.)



AN ORCHARD OF THE LARGE-FRUITED CHINESE HAWTHORN (CRATAEGUS PINNATIFIDA BUNGE) NEAR TAIANFU, SHANTUNG, CHINA. (SEE S. P. I. NO. 38796.)

An extensive orchard of large-fruited Chinese hawthorn trees, showing the dense and low branching habit of this tree. There is such a great demand for these fruits that the farmers are steadily increasing their plantings. The hawthorns (or haws) have never been considered by Americans as valuable fruit trees, although there are species which bear distinctly fine flavored fruits. The existence in China of these orchards of a large-fruited grafted variety, as described by Mr. Frank N. Meyer, suggests the possibility of improving our own American hawthorns and selecting and grafting the best flavored, largest fruited seedlings. The jelly made from the fruit of this Chinese species is considered by Americans in China a distinct delicacy. (Photographed by Frank N. Meyer, March [illegible])

38781 to 38844—Continued. (Quoted notes by Mr. F. N. Meyer.)

38787. ALLIUM SCHOENOPRASUM L. Liliaceæ. **Chives.**

"(No. 2057a. Sianfu, Shensi, China. January 30, 1914.) A superior variety of chives, much used, forced in darkness as a winter vegetable. Eaten with fried meats and as a savory in soups; considered to be very healthful. Might possibly be a profitable crop in America when supplied to the Hebrew and Chinese colonies in eastern American cities. Chinese name *Chiu ts'ai tzŭ*."

38788. CAPSICUM ANNUUM L. Solanaceæ. **Red pepper.**

"(No. 2058a. Feicheng, Shantung, China. March 26, 1914.) A very elongated variety of Chili pepper, locally much dried and kept for winter use. Is used as a condiment in soups and with noodles when ground and mixed with sesame oil and a little salt, creating a good appetite that way. Chinese name *Ch'ang la chiao*, meaning 'long chili pepper.'"

38789 to 38792. ZEA MAYS L. Poaceæ. **Corn.**

From Peking, China. Collected April 28, 1914.

38789. "(No. 2059a.) A variety of flint maize, of golden-yellow color, said to ripen early. Chinese name *Wu yüeh hsien yü mi*, meaning 'fifth moon new imperial grain.'"

38790. "(No. 2060a. A rare variety of flint maize of grayish color, said to ripen early. Chinese name *Wu yüeh hsien yü mi*, meaning 'gray imperial grain.'"

38791. "(No. 2061a. A rare variety of flint maize of violet-purplish color. Said to have come from Japan. Chinese name *Tzŭ yü mi*, meaning 'violet imperial grain.'"

38792. "(No. 2062a.) Mixed varieties of flint maize said to have come from Japan. Chinese name *Tsa jih pên yü mi*, meaning 'mixed Japanese imperial grain.'"

38793. DIOSPYROS KAKI L. f. Diospyraceæ. **Persimmon.**

"(No. 2063a. Provinces of Honan, Shensi, Shansi, and Shantung, China. December, 1913, to April, 1914.) Collected from fruits of cultivated varieties. To be sown to obtain primarily pollen-bearing trees."

38794. PYRUS CHINENSIS Lindl. Malaceæ. **Pear.**

"(No. 2064a. Provinces of Honan, Shensi, Shansi, and Shantung, China. December, 1913, to April, 1914.) Mixed varieties of Chinese pears obtained from fruits of cultivated varieties. To be sown to obtain new varieties possibly."

38795. CHAENOMELES LAGENARIA CATHAYENSIS (Hemsl.) Rehder. Malaceæ. (*Pyrus cathayensis* Hemsl.) **Quince.**

"(No. 2065a. Sianfu, Shensi, China. January 19, 1914.) Mixed varieties of Chinese quinces. To be sown like S. P. I. No. 38794. See S. P. I. No. 35639 for remarks."

38796. CRATAEGUS PINNATIFIDA Bunge. Malaceæ. **Hawthorn.**

"(No. 2066a. Provinces of Honan and Shantung, China. February and March, 1914.) Mixed varieties of Chinese haw fruits. To be sown out for stocks. The seeds may remain dormant for one or two years."

For an illustration of a hawthorn orchard in China, see Plate II.

38781 to 38844—Continued. (Quoted notes by Mr. F. N. Meyer.)

38797 and 38798. THUJA ORIENTALIS L. Pinaceæ. **Arbor vitæ.**

From Chaoyi, Shensi, China. Collected February 7, 1914.

38797. "(No. 2067a.) A remarkable form of the oriental arbor vitæ, of flattened globular shape and of very dense growth. A rare tree! Of value for cemeteries and for places of dignity. Specially suited to mild-wintered, semiarid climes."

38798. "(No. 2068a.) A conical form of the oriental arbor vitæ, of somewhat less dense growth than S. P. I. No. 38797. Of like value."

For an illustration of the arbor vitæ as grown in China, see Plate III.

38799. PYRUS sp. Malaceæ. **Pear.**

"(No. 2069a. Kwanyunting, Honan, China. December 20, 1913.) A small species of pear of round-elongated shape with long peduncle. Color russet brown. Becomes soft and mushy when ripe. Chinese name *T'ang li*, meaning 'sugar pear.'"

38800 to 38802. GLEDITSIA SINENSIS Lam. Cæsalpiniaceæ. **Soap bean.**

38800. "(No. 2070a. Sianfu, Shensi, China. January 7, 1914.) A large-podded variety of the Chinese soap bean. These Chinese Gleditsias often grow to very large size, becoming quite old and at times making beautiful, well-rounded heads of dense branches and foliage. The conspicuous pods persist on the trees all through the winter. These trees are marvelously drought resistant and do not object to a certain amount of alkali. Recommended as an ornamental park and shade tree for the mild-wintered, semiarid sections of the United States. The Chinese find use for the pods, when sliced up, as a substitute for soap for washing their hair and certain fabrics. They call them *Tsao chio*, meaning 'black horns.' To insure a quick germination, scratch the seed or immerse for a second or so in boiling water."

For an illustration of the soap-bean tree in China, see Plate IV.

38801. "(No. 2071a. Lingpao, Honan, China. December 24, 1914.) The ordinary Chinese soap bean, as seen everywhere along the roads in Honan and Shensi. The young trees often have their trunks covered with big spines, which often have totally disappeared, however, when the trees are old. For further remarks, see S. P. I. No. 38800."

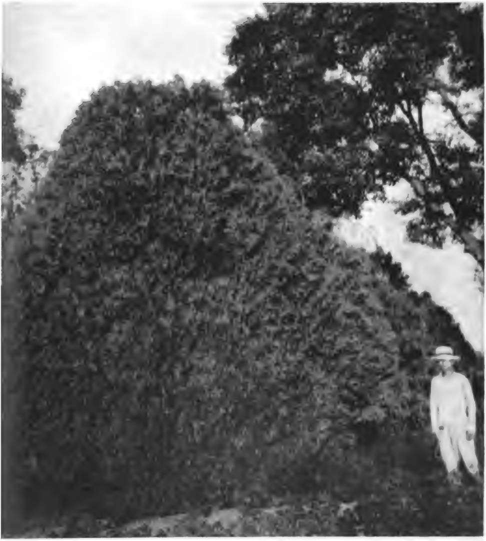
38802. "(No. 2072a. Puchowfu, Shensi, China. February 9, 1914.) A rare variety of Chinese soap bean, having long, slender pods of cylindrical shape. For further remarks see S. P. I. No. 38800. Chinese name *Hsiang ya tsao chio* meaning 'elephant's trunk soap bean.'"

38803. JUNIPERUS CHINENSIS L. Pinaceæ. **Juniper.**

"(No. 2075a. Village of Nantotchu, Shensi, China. January 10, 1914.) A vigorous-growing form of the North Chinese juniper recommended like S. P. I. No. 38804. Chinese name *Hsüeh po*, meaning 'red conifer.'"

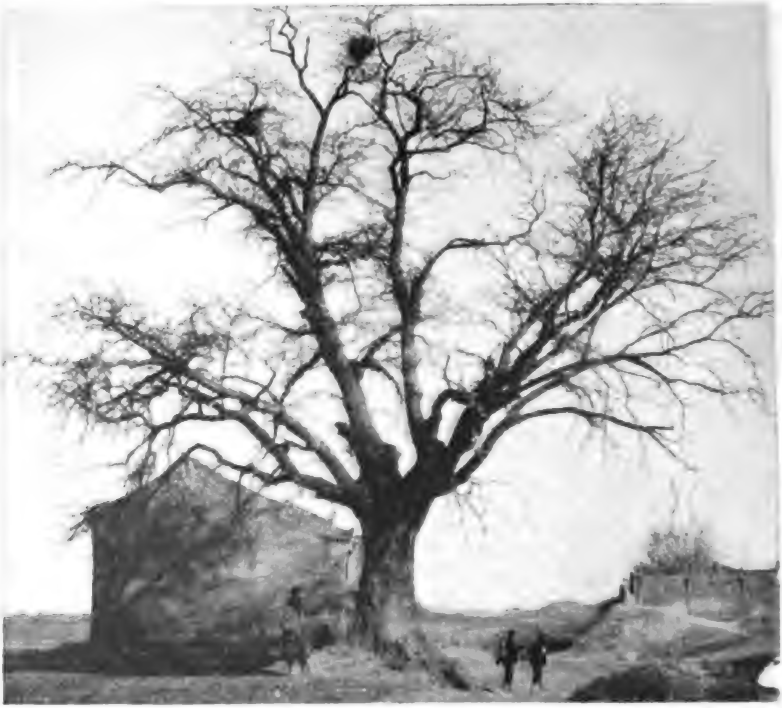
38804. JUNIPERUS CHINENSIS L. Pinaceæ. **Juniper.**

"(No. 2074a. Sianfu, Shensi, China. January 25, 1914.) A juniper of tall, but graceful growth, apparently a form of *Juniperus chinensis*. Able



ARBOR VITÆ (THUJA ORIENTALIS L.) IN SHENSI, CHINA. (SEE S. P. I. NO. 38798.)

A single specimen of conical form, called by the Chinese *Weng pai shu*, meaning "water-jar conifer," referring to its outlines, which seem to resemble certain types of water jars. Of value as an evergreen for cemeteries and for places of dignity. Especially suited to mild-wintered semiarid climes. (Photographed by Frank N. Meyer, August 15, 1914, near Chaoyi, Shensi, China; P13157FS.)



AN OLD SOAP-BEAN TREE (GLEDITSIA SINENSIS LAM.) NEAR TIENTANGYI, SHENSI, CHINA. (SEE S. P. I. NO. 38800.)

A large old tree found in a dry place. The dense head of branches is characteristic of this species of honey locust as seen on the Sianfu plain. It is a long-lived beautiful shade tree with long stout spines and well-rounded head of dense branches and foliage. It is remarkably resistant to drought and a valuable ornamental park and shade tree for the semiarid sections of the United States. The large thick pods, which contain considerable quantities of saponin, are sliced and used as a substitute for soap. No. 38800 is a large-podded variety of this interesting tree. (Photographe by Frank N. Meyer, January 23, 1915; P12160FS.)

38781 to 38844—Continued. (Quoted notes by Mr. F. N. Meyer.)

to withstand considerable drought and alkali, and recommended as a very ornamental evergreen for parks and gardens in the mild-wintered, semiarid sections of the United States."

38805. TOONA SINENSIS (Juss.) Roemer. Meliaceæ.
(*Cedrela sinensis* Juss.)

From Changli, Chihli, China. Secured by Mr. Frank N. Meyer, from Mrs. Mary Clemens. Collected November 1, 1913.

"(No. 2076a.) The well-known Chinese cigar-box wood, of which the Chinese eat the young sprouts like spinach. The trees become quite old, grow to large size, and withstand drought and alkali to a considerable extent. Recommended as a shade and avenue tree for the mild-wintered sections of the semiarid belt in the United States. Chinese name *Hsiang ch'un shu*, meaning 'sweet chun tree.' Obtained from Mrs. Mary Clemens at Tientsin, who collected these seeds at Changli."

38806. PAULOWNIA FORTUNEI (Seem.) Hemsley (?). Scrophulariaceæ.

"(No. 2077a. Village of Nantotchu, south of Sianfu, Shensi, China. January 21, 1914.) A Paulownia growing into a medium-sized tree, able to withstand drought and a certain amount of alkali. For further information, see S. P. I. No. 38184."

38807. LIGUSTRUM QUIHOUI Carr. Oleaceæ. **Privet.**

"(No. 2078a. Mountains near Nantotchu, Shensi, China. January 21, 1914.) A privet found in rocky banks and in between pebbles and rocks, growing into a small or medium-sized bush. Bears masses of small black berries, that set off well the small evergreen foliage. Is much utilized by the Chinese upon which to graft *Olea fragrans*. Of value as a hedge and border shrub, especially for the mild-wintered, semiarid parts of the United States. Chinese name *Tung ch'ing chih*, meaning 'wintergreen.'"

38808 and 38809. LESPEDEZA sp. Fabaceæ.

From Tahuashan, Shensi, China. Collected December 29, 1913.

38808. "(No. 2079a.) A shrubby Lespedeza, growing 3 to 4 feet in height, found on rocky mountain slopes at altitudes of 3,000 to 4,000 feet. Of value possibly for forage purposes and as a cover shrub on sandy wastes."

38809. "(No. 2080a.) A small, shrubby Lespedeza, found on rocky mountain sides at about 3,000 feet elevation. Of value possibly for forage purposes and as a cover shrub on sandy wastes."

38810. TILIA MONGOLICA Maxim. Tiliaceæ. **Linden.**

"(No. 2081a. Tahuashan, Shensi, China, December 29, 1913.) A small-leaved linden occurring on rocky mountain sides. In the higher altitudes and in the more exposed places it remains a shrub, but when found in sheltered localities grows to be a tall tree. Of value possibly as a hardy shade and park tree for northern localities. Collected at 5,000 feet altitude. Chinese name *Mi tuan shu*."

38811. BERBERIS sp. Berberidaceæ. **Barberry.**

"(No. 2084a. Tahuashan, Shensi, China. December 29, 1913.) A barberry of medium tall growth, found on stony mountain slopes. Bears very large red fruits, which may prove to be of value for preserving purposes. Collected at an altitude of about 6,000 feet."

38781 to 38844—Continued. (Quoted notes by Mr. F. N. Meyer.)

38812. HYDRANGEA BRETSCHNEIDERI Dippel. Hydrangeaceæ. **Hydrangea.**

"(No. 2085a. Tahuashan, Shensi, China. December 29, 1913.) A vigorously growing Hydrangea, mostly found between bowlders or rocks on somewhat moist soils. Of value possibly as an ornamental park shrub for northern regions."

38813. VIBURNUM sp. Caprifoliaceæ.

"(No. 2086a. Tahuashan, Shensi, China. December 29, 1913.) A Viburnum, found as undergrowth between tall, open trees. In habit resembling *Viburnum opulus* but of looser growth and thinner branches. Of value possibly as an ornamental park shrub for northern regions."

38814. LONICERA PERICLYMENUM L. Caprifoliaceæ. **Honeysuckle.**

"(No. 2087a. Tahuashan, Shensi, China. December 29, 1913.) A twining honeysuckle found between scrub in shady places. The flowers are borne in terminal bunches and are surrounded by a typical large circular involucrum. Of value as a porch or pillar vine in gardens and parks."

38815 and 38816. LONICERA spp. Caprifoliaceæ. **Honeysuckle.**

From the mountains near Nantotchu, Shensi, China. Collected January 21, 1914.

38815. "(No. 2088a.) An evergreen, trailing honeysuckle bearing black berries, found on well-sheltered, rocky banks. Of value for covering waste places."

38816. "(No. 2089a.) A bush honeysuckle. See S. P. I. No. 37545 for previous introduction."

38817. EXOCHORDA RACEMOSA (Lindl.) Rehder. Rosaceæ.
(*Exochorda grandiflora* Lindl.)

"(No. 2090a. Tahuashan, Shensi, China. December 29, 1913.) A medium tall, sturdy shrub, found here and there in great masses in rocky crevices at altitudes between 3,000 and 5,000 feet. Of value as an ornamental garden shrub, especially for rockeries, and for semiarid regions."

38818. CLEMATIS sp. Ranunculaceæ. **Clematis.**

"(No. 2091a. Tahuashan, Shensi, China. December 29, 1913.) A climbing clematis found in between shrubbery and running over same. Bears apparently large flowers; possesses somewhat glossy foliage. Collected at an altitude of 4,500 feet."

38819. ELSHOLTZIA STAUNTONI Benth. Menthaceæ.

"(No. 2092a. Tahuashan, Shensi, China. December 28. 1913.) A woody labiate, growing from 1½ to 2 feet in height, found amidst stony débris at altitudes between 2,000 and 3,000 feet. Of value possibly as a rockery shrub and along open borders."

38820. ALBIZZIA sp. Mimosaceæ.

"(No. 2093a. Near Taianfu, Shantung, China. March 22, 1914.) A silk-flower tree having whitish blossoms and large doubly pinnate leaves. Found on rocky, sterile, mountain slopes. Of value as a soil binder in dry regions. For further information see S. P. I. No. 38285."

38781 to 38844—Continued. (Quoted notes by Mr. F. N. Meyer.)

38821. Rosa sp. **Rose.**

"(No. 2094a. Tahuashan, Shensi, China. December 29, 1913.) A shrubby rose, of which the young twigs are reddish colored and bear very broad, reddish spines, like *Rosa hugonis*. The old fruits are black. Collected on stony places at an altitude of about 5,000 feet."

38822. Celtis sinensis Pers. Ulmaceæ. **Hackberry.**

"(No. 2095a. Near Mienchih, Honan, China. February 20, 1914.) A hackberry, growing into a medium-sized tree, producing a dense head of branches. Found in rocky cliffs. Of value as a shade tree for semiarid climes."

38823. Rosa multiflora cathayensis Rehd. and Wils. Rosaceæ. **Rose.**

"(No. 2096a. Tahuashan, Shensi, China. December 29, 1913.) A semievergreen, trailing rose, found on rocky places and among low scrub. Leaves dark, glossy green; apparently very floriferous. Of value possibly in breeding experiments."

38824. Caragana sp. Fabaceæ.

"(No. 2097a. Tahuashan, Shensi, China. December 29, 1913.) A peculiar species of Caragana of very erect growth, found on semishady rocky mountain slopes, at altitudes of over 5,000 feet. Of value as a garden and park shrub for northern regions."

38825. Zanthoxylum alatum Roxb. Rutaceæ.

"(No. 2098a. Mountains near Nantotchu, south of Sianfu, Shensi, China. January 21, 1914.) A Chinese pepper bush having semipersistent pinnate leaves, of which the midribs are winged. Of loose and open growth and having long, overhanging branches. Found beneath the shelter of various trees. Of value possibly as an ornamental park shrub for the mild-wintered regions of the United States."

38826. Jasminum sp. Oleaceæ. **Jasmine.**

"(No. 2099a. Near Nantotchu, Shensi, China. January 21, 1914.) A jasmine, growing to 1 to 3 feet in height, having erect, bright-green branches and bearing black berries. Found on dry and sterile mountain slopes, between scrub. Of value possibly as a rockery shrub and along borders and pathways in gardens and parks."

38827. Smilax vaginata Decaisne. Smilacaceæ.

"(No. 2100a. Tahuashan, Shensi, China. December 29, 1913.) A peculiar liliaceous shrub having strong, but brittle, erect branches of green color, growing to 3 to 5 feet in height. Bears small clusters of blue-black berries. Found on shaded mountain slopes and as undergrowth beneath trees. Deciduous. Of value as a ground cover beneath tree growth for southern parks."

38828. Syringa amurensis Rupr. (?) Oleaceæ. **Lilac.**

"(No. 2101a. Tahuashan, Shensi, China. December 29, 1913.) A tree lilac, found in great masses here and there on rocky mountain slopes, at altitudes between 3,000 and 5,000 feet. Of value as a stock for standard lilacs and for hybridization purposes."

38829. Syringa sp. Oleaceæ. **Lilac.**

"(No. 2102a. Mountains near Nantotchu, Shensi, China. January 21, 1914.) A lilac of small and slender growth found on a stony mountain slope. See S. P. I. No. 37544 for prevous introduction."

38781 to 38844—Continued. (Quoted notes by Mr. F. N. Meyer.)

38830. SYRINGA VILLOSA Vahl. **Lilac.**

"(No. 2103a. Tahuashan, Shensi, China. December 29, 1913.) A small lilac of very sturdy growth, found in rocky cliffs at altitudes of 4,000 to 6,000 feet. Of value as a garden and park shrub for the northern sections of the United States."

38831. THUJA ORIENTALIS L. Pinaceæ. **Arbor vitæ.**

"(No. 2104a. Mountain near Nantotchu, Shensi, China. January 21, 1914.) The ordinary oriental arbor vitæ, collected from specimens found growing on exposed rocky places. For trial in sections north of the present limits of this tree. Also to be tested in very dry localities. Chinese name *Mien po*, meaning 'soft conifer.'"

38832. KOLKWITZIA AMABILIS Graebner. Caprifoliaceæ.

"(No. 2105a. Tahuashan, Shensi, China. December 29, 1913.) A shrub, growing from 4 to 6 feet in height, found on rocky places, bearing small, spiny fruits. See S. P. I. No. 37480 for previous introduction."

38833 to 38835. EUONYMUS spp. Celastraceæ.

From Tahuashan, Shensi, China. Collected December 29, 1913.

38833. "(No. 2106a.) A shrubby cardinal's-cap having long, thin branches, bearing small fruits, hanging down on long peduncles. Found in between bowlders and rocks."

38834. "(No. 2107a.) A shrubby cardinal's-cap of more robust growth than S. P. I. No. 38833, also having larger fruits. Found as undergrowth beneath tall trees on rocky places."

38835. "(No. 2108a.) A cardinal's-cap having large, fleshy fruits; grows into a medium-sized shrub; found on somewhat shady places."

38836. CELASTRUS ANGULATUS Maxim. Celastraceæ. **Bittersweet.**

"(No. 2109a. Tahuashan, Shensi, China. December 30, 1913.) A species of bittersweet of semitrailing, shrubby growth, found on partly shaded places in between scrub. Quite ornamental when covered with its masses of yellow capsules, out of which peep the scarlet-orange coated seeds."

38837. PAEDERIA FOETIDA L. Rubiaceæ.

"(No. 2110a. Mountains near Nantotchu, Shensi, China. January 21, 1914.) A slender, semiwoody climber, found on rocky mountain slopes in between tall scrub; bears bunches of yellowish berries."

38838. COCCULUS sp. Menispermaceæ.

"(No. 2111a. Mountains near Nantotchu, Shensi, China. January 21, 1914.) A trailing herbaceous vine, bearing bluish berries; found on open stony places."

38839. OPHIOPOGON JAPONICUS (L. f.) Ker-Gawler. Liliaceæ.

"(No. 2113a. Mountains near Nantotchu, Shensi, China. January 21, 1914.) An Ophiopogon, with long, slender leaves, remaining green all winter. Bears long spikes of black berries. Found on mountain slopes of decomposed rock between low scrub. Of value as an edging plant along pathways and as a ground cover in shady places for the mild-wintered sections of the United States."

38781 to 38844—Continued. (Quoted notes by Mr. F. N. Meyer.)

38840. ASPARAGUS sp. Convallariaceæ. **Asparagus.**

"(No. 2114a. Chaoyi, Shensi, China. February 7, 1914.) A rare species of asparagus of somewhat trailing or twining growth; found in a sandy loess bank."

38841. ANEMONE sp. Ranunculaceæ. **Anemone.**

"(No. 2115a. Tahuashan, Shensi, China. December 29, 1913.) A tall-growing anemone, found amidst bowlders and rocks on somewhat sheltered places at altitudes between 2,000 and 4,000 feet. Apparently ornamental."

38842. TRICHOSANTHES KIRILOWII Maxim. Cucurbitaceæ. **Gourd.**

"(No. 2116a. Maochinchen, Shensi, China. February 17, 1914.) A gourd, grown as an ornamental, also used as a medicinal simple, called *Kua lü*. See S. P. I. Nos. 36118 and 38489 for previous introductions."

38843. ACER sp. Aceraceæ. **Maple.**

"(No. 2082a. Tahuashan, Shensi, China. December 29, 1913.) A maple, growing to be a medium-sized tree, having a scaly, somewhat rosy colored bark. Leaves small, trifoliate and hirsute; coloring up in fall to a rosy wine red. Wood very hard and used for posts and pillars. Collected at about 5,000 feet elevation. The seeds may remain dormant for a long time."

38844. CRATAEGUS sp. Malaceæ. **Hawthorn.**

"(No. 2083a. Tahuashan, Shensi, China. December 29, 1913.) A shrubby hawthorn, found on rocky mountain slopes. Collected at an altitude of over 5,000 feet. Of value possibly as a park shrub in northern climes."

38845 and 38846. ORYZA SATIVA L. Poaceæ. **Rice.**

From Valencia, Spain. Presented by Mr. Eduardo E. Monteraso, Estacion Arrocera de Sueca. Received July 20, 1914.

38845. *Amonquili.*

38846. "*Benlloch.* This variety is cultivated in this region at the present time, although three years ago *Amonquili*, now no longer cultivated, was the variety raised." (*Monteraso.*)

38847 to 38849. COLOCASIA ESCULENTA (L.) Schott. Araceæ. **Taro.**

From Honolulu, Hawaii. Presented by Mr. E. V. Wilcox, Hawaii Experiment Station. Received July 16, 1914.

38847. *Aweoweo taro.* Furnished by Mr. V. S. Holt, Waianae.

38848. *Keokeo.* Secured from the Waterhouse Co., Honolulu.

38849. *Ulaula.* Secured from the Waterhouse Co., Honolulu.

38850 and 38851.

From Buenos Aires, Argentina. Presented by the director general, Botanic Garden. Received July 10, 1914.

38850. CARICA QUERCIFOLIA (St. Hil.) Benth. and Hook. Papayaceæ.

See S. P. I. Nos. 3534 and 30586 for previous introductions and description.

38850 and 38851—Continued.

38851. GLEDITSIA AMORPHOIDES (Griseb.) Taub. **Cæsalpiniaceæ.**
(*Garugandra amorphoides* Griseb.)

See S. P. I. Nos. 8934 and 33965 for previous introductions and description.

38852. MEDICAGO SATIVA L. Fabaceæ. **Alfalfa.**

From Ekatarinodar, Kuban Government, Russia. Secured by Mr. E. Brown, of the Bureau of Plant Industry, from Mr. A. N. Rockel. Received July 3, 1914.

"This is the best alfalfa region in southern Russia, where it has been cultivated for 30 years. Seed is said to have been first brought from Turkestan. In the southern part of the district where the soil is deepest, alfalfa lasts 10 to 12 years. In the northern part the soil is shallower, and alfalfa does not usually last over 4 or 5 years." (*Brown.*)

38853. VITIS TILIAEFOLIA Humb. and Bonpl. Vitaceæ. **Grape.**
(*Vitis caribaea* DC.)

From Herradura, Pinar del Rio, Cuba. Collected by Mr. Wilson Popenoe, Agricultural Explorer for the Department of Agriculture. Received July 23, 1914.

"(No. 1, July 17, 1914.) A vigorous, rapid-growing vine, occurring in the mountains of this Province. These cuttings were obtained from a plant growing in the garden of Prof. F. S. Earle, who considers the species to be of great interest and value for use in developing a race of grapes which can be successfully grown in strictly tropical regions, and he recommends that careful attention be devoted to the hybridization of this species with some of the northern cultivated grapes. In Prof. Earle's garden the vine has completely covered a cashew tree 20 or 25 feet in height and produces fruit very similar in appearance to the wild grape of the North. The bunches are 3 to 5 inches in length, loose, the berries deep purple in color, and about three-eighths of an inch in diameter. They are used here for making jelly and grape juice." (*Popenoe.*)

38854. OCHROMA LAGOPUS Swartz. Bombacaceæ.

From Ceylon. Presented by Mr. J. T. Crawley, director, Estacion Experimental Agronómica, Santiago de las Vegas, Cuba. Received July 17, 1914.

"A very valuable plant of large growth; the wool produced by the fruit is textile, and the wood of the trunk is very light. It is employed in Cuba among other purposes for sustaining on the water the nets used for fishing, instead of cork." (*Crawley.*)

38855 and 38856.

From Peking, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received July 24, 1914. Quoted notes by Mr. Meyer.

38855. SAXIFRAGA sp. Saxifragaceæ. **Saxifraga.**

"(No. 1220. June 14, 1914.) A wild plant, offered for sale in the streets of Peking. Said to be ornamental, having rose-colored flowers. Loves somewhat moist, shady situations. Chinese name *Ssŭ chi hai t'ang*, meaning 'four-season begonia.'"

38855 and 38856—Continued. (Quoted note by Mr. F. N. Meyer.)

38856. PRUNUS TOMENTOSA Thunb. Amygdalaceæ. **Cherry.**

"(No. 2117a. June, 1914.) Stones of the North China bush cherry, a fruiting shrub of great promise for the cooler, semiarid sections of the United States. Chinese name *Suan t'ao* or *Suan ying t'ao*, meaning 'sour cherry.'"

38857 and 38858.

From Asuncion, Paraguay. Presented by Mr. C. F. Mead. Received July 23, 1914. Quoted notes by Mr. Mead.

38857. MANIHOT ESCULENTA Crantz. Euphorbiaceæ. **Cassava.**
(*Manihot utilissima* Pohl.)

"*Yeruti* (shorter and smaller canes). In June, 1913, I started a Paraguayan on a small chacra belonging to myself, situated at Caballero, about 50 miles south of Asuncion. That month he planted 3 hectares of maize. At the last cultivation of said crop, about October 20, he planted, as is customary here, mandioca or cassava, as you call it, between rows. I have just returned from a two-weeks' trip to this same place, and on June 1 I dug up 100 plants, weighing the tubers. From these weights, as an average of the whole, the crop was 38,500 kilos per hectare. All of this mandioca will not be used this year, and all that is left in the ground until next year will produce nearly double the weight. According to my figures, that date is 7 months 11 days from time of planting, but they have been digging and using the same mandioca since the middle of April. The varieties planted are called in Guarany *Mandio Yeruti* and *Mandio Concepcion*, both of them sweet varieties, and differing, in that the *Concepcion* resists drought better. I can not give you any statistics as to chemical properties, but I have seen the practical results of feeding, it being the staff of life here for the family and for farm animals. The starch content is very high also, great quantities being used for making almidon or mandioca flour or starch. The plants need a sandy and very loose soil, but not too rich, or they will all run to stalk."

38858. ILEX PARAGUARIENSIS St. Hil. Aquifoliaceæ. **Yerba maté.**

"The yerba industry is one of the most prosperous in all this district, and it is getting better every day."

38859. ACHRAS ZAPOTA L. Sapotaceæ. Sapodilla.
(*Achras sapota* L.)

From Port of Spain, Trinidad, British West Indies. Presented by Dr. J. I. Senior, through Mr. A. J. McConnico, American consul. Received July 23, 1914.

"Some time before I left Trinidad I came across a sapodilla tree which has enormous fruits, quite the largest I have ever seen. As none were ripe, I had no opportunity of testing the quality." (*Frank Evans.*)

"It may not be out of the way to mention that I imported this plant from Curacao, Dutch West Indies, where the sapodilla grows to perfection in all the different and best varieties; among many that I imported only two of them produce such very large fruits." (*Senior.*)

38860. FERONIELLA LUCIDA (Scheff.) Swingle. Rutaceæ.
(*Feronia lucida* Scheff.)

From Buitenzorg, Java. Presented by the director, Department of Agriculture. Received July 24, 1914.

For description, see W. T. Swingle. In Bailey, Standard Cyclopedia of Horticulture.

38861. MANIHOT ESCULENTA Crantz. Euphorbiaceæ. **Cassava.**
(*Manihot utilissima* Pohl.)

From Asuncion, Paraguay. Presented by Mr. C. F. Mead. Received July 23, 1914.

"*Concepcion* (long thick canes)."

For description, see S. P. I. No. 38857.

38862. HYMENAEA COURBARIL L. Cæsalpiniaceæ. **Guapinol.**

From San Jose, Costa Rica. Presented by the Department of Agriculture. Received July 16, 1914.

See S. P. I. No. 38565 for previous introduction.

"One of the most beautiful trees of the *tierra caliente* of the Pacific coast, with low trunk and flattened forking, and with leaves composed of two leaflets and imitating a deer's skull. Its fruits are short, thick pods, chocolate color, enclosing variegated seeds surrounded by a dry white powder, used as food by the Indians. The wood is hard and used in the construction of various articles as, for example, mills for grinding cane." (*Pittier, Plantes Usuales de Costa Rica.*)

38863. STIZOLOBIUM sp. Fabaceæ.

From Schoeneberg, Berlin, Germany. Presented by Prof. Dr. G. Schweinfurth. Received July 16, 1914.

"Probably from Tabora, German East Africa, but there is no definite information on this point. This Stizolobium has short, gray, appressed pubescence on the pods, and the seeds are pale gray, thickly spotted, and clouded with brown. Both the pods and the seeds resemble very closely some of the hybrids obtained between the Lyon bean and the Florida velvet bean. This suggests that the present Stizolobium may likewise be a hybrid." (*C. V. Piper.*)

38864 and 38865. MEDICAGO SATIVA L. Fabaceæ. **Alfalfa.**

From General Roco, Rio Negro, Argentina. Presented by Mr. Walter Fischer, director, Experiment Station, General Roco. Received July 24, 1914.

"It is customary in this valley, where everything is grown under irrigation and where four cuttings of alfalfa are made per season, to save the second cutting for the seed crop when seed is desired. The object of this is to get a crop more free of weeds than the first cutting would be, and in which there is very often quite a large amount of *trebol de olor* (*Melilotus parviflora*, I believe). As a rule, however, there are very few weeds in any of the alfalfa fields here. These seeds are as they came from the machine, with only the coarse chaff removed." (*Fischer.*)

38864. No. 1. From the first cutting.

38865. No. 2. From the second cutting.

38866. HOLCUS SORGHUM VERTICILLIFLORUS (Steud.) Hitchc.

From Pretoria, Union of South Africa. Presented by Mr. I. B. Pole Evans, chief, Division of Botany, Department of Agriculture. Received July 24, 1914.

"The seed of this plant matures very irregularly, and I fear much of this seed was unavoidably collected immature. Out here it seems to thrive best in moist clayey loam soils (riversides), but it is apt to become infested with the maize stalk borer." (*Evans.*)

38867. ORYZA SATIVA L. Poaceæ. **Rice.**

From Saloniki, Greece. Presented by Mr. G. Bie Ravndal, American consul general, Constantinople. Received July 16, 1914.

"*Saloniki.* European Turkey grows very little rice; since Macedonia has been taken from the empire by the allied Balkan States, practically none at all. Though all Constantinople was carefully searched for it, not a sample of any sort of rice grown in Turkey in Europe could be obtained here. Inquiries made of the British consul at Adrianople, charged with American interests, produced no better result, and only from the American consul at Saloniki could any information and a sample be secured at all. According to his reply to my request, rice is grown in the region of Vodena, territory now belonging to Greece, near Saloniki, the annual production of which is estimated at from 30 to 40 tons. Almost the entire yield is consumed in Vodena. Some 900 to 1,000 tons are grown in the region of Strumnitza and from 500 to 600 tons in Ichtib, formerly forming a part of European Turkey and now under the sovereignty of Bulgaria and Serbia, respectively. The crop grown at Ichtib is considered of best quality. The soil of Vodena is ordinary earth through which water runs continually. The season of sowing is April; of harvesting, October. The quantity of yield to the dönüm (which is equivalent to 1,600 square piks=856.48 square yards) is from 300 to 800 okes (846.50 to 2,257.50 pounds) of unshelled rice. One hundred okes (282.19 pounds) will give from 50 to 55 okes (141 to 155.20 pounds) of shelled rice. It seems that a record of the cost of production is not obtainable from the growers in these regions. The produce is sold according to the prevailing market prices. From 8 to 10 okes (22.50 to 28.20 pounds) of seed are necessary for one dönüm (856.48 square yards). Owing to the abundance of marshy ground essential for rice cultivation in the region of Vodena, the possibilities for the development of this industry are considerable." (*Ravndal.*)

38868 to 38880. COIX spp. Poaceæ. **Job's-tears.**

From Burma, India. Presented by Mr. H. G. Carter, economic botanist to the Botanical Survey of India, Indian Museum, Calcutta, India. Received July 20, 1914. Quoted notes by Mr. Carter, except as otherwise indicated.

38868 and 38869. COIX LACRYMA-JOBI GIGANTEA (Koenig) Stapf.

38868. "Var. *aquatica.* No. 36288, from the district commissioner, Pegu, Burma."

38869. "Var. *aquatica.* No. 36289, from the district commissioner, Pegu, Burma."

38870. COIX LACRYMA-JOBI STENOCARPA (Oliver) Stapf.

"No. 36323, from the superintendent and political officer, Southern Shan States, Taungyi, Burma."

38868 to 38880—Continued. (Quoted notes by Mr. H. G. Carter.)

38871 to 38874. COIX LACRYMA-JOBI MA-YUEN (Romanet) Stapf.

"From the superintendent and political officer, Southern Shan States, Taungyi, Burma."

38871.	No. 36324.	**38873.**	No. 36326.
38872.	No. 36325.	**38874.**	No. 36327.

"The fully cultivated and edible form, *Mayuen*, is grown (so far as India is concerned) in the Central Provinces, Sikkim, the Khasi Hills, Burma, and the Shan States, and outside of India it appears to be cultivated in Tonkin, China, and the Malaya, but apparently nowhere else. In the elongated semipyriform states of cultivated *C. lacryma-jobi* there is a further peculiarity, viz, a portion at the base of the fruit spathe becomes constricted into a well-marked annular disk. The condition with a soft and striated shell and basal annulus appears to constitute the variety known to botanists as *Mayuen*, a name given in honor of the Chinese general who is supposed to have first pointedly directed attention to the plant." (*Watt, Commercial Products of India*, which see for discussion of the plant as a crop.)

38875 to 38880.

"From the superintendent and political officer, Southern Shan States, Taungyi, Burma."

38875. COIX LACRYMA-JOBI STENOCARPA (Oliver) Stapf.

No. 36328.

"In the variety known as *stenocarpa* the capsular spathe is elongated until it becomes cylindrical, but when cultivated the tubes (so formed) change in color to chalky white or become almost straw colored." (*Watt, Commercial Products of India.*)

38876. COIX LACRYMA-JOBI L.

No. 36329.

38877 to 38879. COIX LACRYMA-JOBI MA-YUEN (Romanet) Stapf.

38877.	No. 36331.	**38879.**	No. 36333.
38878.	No. 36332.		

38880. COIX LACRYMA-JOBI L.

"No. 36339. This shows a transitional form of variety *stenocarpa* passing into variety *monilifer*."

"The flattened spheroidal form, the connecting link between *C. lacryma-jobi* and var. *stenocarpa*, is the special bead form. It is a wild plant met with chiefly in Burma, the Malaya, China, and Japan, and has been named by me var. *monilifer*." (*Watt, Commercial Products of India.*)

38881 and 38882. PASSIFLORA MALIFORMIS L. Passifloraceæ.

Passion fruit.

From Bogota, Colombia. Presented by Mr. T. A. Thomson, American minister, who obtained them from Mr. F. L. Rockwood, clerk of the legation, Bogota. Received July 24, 1914. Quoted notes by Mr. Rockwood.

38881 and 38882—Continued. (Quoted notes by Mr. F. L. Rockwood.)

38881. "No. 1. *Kuruba amarilla*, yellow kuruba, is a prolific bearer and a standard fruit in the market of this capital. The fruits are used in the same manner as strawberries for the table. It is a climbing vine and has an attractive flower."

38882. "No. 2. *Kuruba indio*, Indian kuruba. Its name is taken from the frequency with which it is met around the huts of the Indians in the Andes. A brilliant scarlet flower and green-colored fruit which is liked by the Indians and eaten without any preparation. Seldom, if ever, found in the market. These fruits are mixed with the yellow when procuring them from the mountain by parties sent out for them."

38883 to 38887.

From Esperanza, Sonora, Mexico. Presented by Mr. W. W. Mackie, director, Yaqui Valley Experiment Station. Received July 22, 1914. Quoted notes by Mr. Mackie, except as otherwise indicated.

"Gathered in Merv, Transcaspia, Turkestan, in 1911. These seeds came from selections out of three years of crops, during which time I have had them under observation. The climate for the first part of the year in the Yaqui Valley is very similar to the summer of Turkestan, where I obtained these seeds."

38883. BETA VULGARIS L. Chenopodiaceæ. **Beet.**

"The beets produced from these seeds are very vigorous, hardy, and drought resistant. The leaves are large and tender and are much used for greens in Turkestan. The flesh is tender, sweet, and light red in color. The root grows to an immense size and is eaten greedily by stock. For three seasons this beet has regularly produced an abundance of plump seeds of high viability in June from seeds planted in the preceding fall. This seeding of beets the first year from seed sometimes occurs at intervals in individuals when subjected to drought and again irrigated, thus starting a new or second growth, but this Turkestan beet produces seed from every beet regularly in June."

38884. CUCURBITA PEPO L. Cucurbitaceæ. **Pumpkin.**

"Grown for three years at the experiment station at Merv. When planted in March immense crops were produced in June. With the beginning of the rainy season in July another crop is planted, producing fine crops in December. The soil is a dark-red clay. Other pumpkins do not produce such good crops, nor do they so well withstand the heat and drought. The rind is hard and greenish in color. It is a good keeper, lasting for months in this warm climate."

38885. HORDEUM VULGARE PALLIDUM Seringe. Poaceæ. **Barley.**

"*White Turkestan* barley gathered in Merv, Transcaspia, Turkestan, in 1911. 'The barley itself is of the 6-rowed *nutans* type and has a marked flesh-colored aleurone layer, such as is characteristic of barleys of Asiatic origin; in fact the flesh-colored appearance is more pronounced than we have ever noticed in any similar barley before. This barley really is strange to us. It is irregular in size and form and has a very low albumen content' (due no doubt to the skinning off of the germ or embryo by too close thrashing). 'The taste and flavor are remarkably agreeable. If any of this barley is malted, we should be pleased to receive a 5-pound

38883 to 38887—Continued. (Quoted notes by Mr. W. W. Mackie.)

sample of the malt, since we are inclined to believe that this barley, under proper conditions as to cultivation and thrashing, would result in good malt. If this barley could possibly be grown on a rich, nitrogenous soil, so that the albumen content could be increased to about 13 per cent, it, in our opinion, would be by far the best barley for malting purposes among the samples sent.' (*Report of Wahl-Henius Institute of Fermentology.*)

"Our field tests show this barley to be very vigorous and hardy, with splendid germination. In height it is about 20 to 30 per cent shorter than the common California 6-rowed barley, but produces thicker and longer heads. It is nearly 3 weeks earlier in maturing. In other words, it is a quicker growing variety. On account of its propensity to rust, I would advise that it be planted inland, away from the influence of the seacoast fogs. It appears to be entirely suited to the arid irrigated regions of the Southwest. All our grains are grown entirely without rain by the aid of irrigation, even to sprouting the seed. The *White Turkestan* yields far better than other varieties tested."

38886 and 38887. HORDEUM VULGARE NIGRUM (Willd.) Beaven. **Barley.**

38886. "*Late Black Turkestan* barley gathered in 1911. This barley was secured by me in Samarkand, Turkestan, where the winters are quite severe, with considerable snow. The thermometer often goes far below zero. Our tests at the experiment station show it to be vigorous and hardy, but three weeks later than all other barleys. It behaves much like winter wheat which lies beneath the covering of snow during the winter. This barley would probably do well in the colder regions of the United States. It yields about the same as common or California barley."

38887. "*Early Black Turkestan* barley. This barley is a selection from the Early White Turkestan, which it resembles in every particular except color."

38888. PERSEA AMERICANA Miller. Lauraceæ.

(*Persea gratissima* Gaertn. f.) **Murrieta avocado.**

From Pasadena, Cal. Presented by Mr. R. J. Mather. Received July 30, 1914.

"The *Murrieta* avocado is the only one of the large-fruited, thick-skinned type that ripens in the fall, as far as the author is aware, and this fact makes it of special importance. Few others are on the market at the same time. It is of the round type and is an ideal shipper. At the present time it is rather difficult to propagate (because the trees are growing in very shallow soil underlain with bedrock, which condition may affect the vigor of the trees and through that the vitality of the buds), but this may be overcome in the future.

"Form, obliquely roundish; length, 3¾, diameter 3½ inches; weight, 16 to 20 ounces; apex slightly depressed; base rounded; cavity furrowed, narrow, very shallow, and abrupt; stem stout, truncate; surface undulating to slightly rough; color, yellowish green with numerous medium, rounded, greenish-yellow dots; skin medium thick, tough, finely granular, separating readily from the flesh; flesh creamy yellow, slightly greenish near the skin; texture fine grained,

38888—Continued.

smooth, buttery; fiber, none; flavor rich, very nutty, and pleasant; quality extra good; seed large, spherical, tight in cavity; seed cavity large; season September and October at Los Angeles, Cal." (*K. A. Ryerson, University of California Journal of Agriculture, No. 4, p. 83, 1913.*)

38889. TRITICUM AESTIVUM L. Poaceæ. **Wheat.**
(*Triticum vulgare* Vill.)

From Esperanza, Sonora, Mexico. Presented by Mr. W. W. Mackie, director, Yaqui Valley Experiment Station. Received July 22, 1914.

"*Turkestan* wheat gathered in 1911. These seeds came from selections out of three years of crops, during which time I have had them under observation. The climate for the first part of the year in the Yaqui Valley is very similar to the summer of Turkestan where I obtained these seeds. This wheat was secured on the irrigated lands of the Merv Oasis in Transcaspia, where it is grown mainly by irrigation. It somewhat resembles *Chul* wheat, which was secured in the Valley of the Syr Darya farther north. In Turkestan it yields well and is very hardy and vigorous in the face of severe dry winds and drought. In the Yaqui Valley, however, it is entirely consumed with rust, as is *Chul* wheat. We lie 30 miles inland from the Gulf of California." (*Mackie.*)

38890 and 38891.

From Buitenzorg, Java. Presented by the director, Botanic Gardens. Received July 30, 1914.

38890. ARTOCARPUS INTEGRA (Thunb.) L. f. Moraceæ. **Jack fruit.**

See S. P. I. Nos. 6451 and 27170 for previous introductions and description.

"A very large tree, native of South India and Malaya, introduced and cultivated in Ceylon, where it has become seminaturalized. The enormous fruits, a single one of which may weigh over 100 pounds, are borne on the trunk and older branches, sometimes at the base of the trunk or even under ground. It is usually oblong and irregular in shape (sometimes almost round), being always green, with the rind consisting of somewhat hexagonal knobs. This fruit forms a very important article of food with the natives, whilst some Europeans also relish it when cooked in curries. When ripe, the fruit has an overpowering odor, and the stronger the latter the better the quality of the fruit, the former not being disliked by those who relish the latter. With the exception of the rind and core, the whole of the fruit is eaten, the white or cream-colored, soft, flaky pulp being used either raw, or boiled, or fried, and used as vegetable for curries, etc. The large, albuminous, datelike seeds are roasted and esteemed in curries. The timber is excellent for cabinetwork, building, etc., and is much used in Ceylon; lemon yellow at first, it turns with age to a very dark tint like mahogany, to which it is but little inferior. The tree is propagated by seed and is suited to moist or semidry districts up to 2,000 feet elevation." (*Macmillan, Handbook of Tropical Gardening.*)

38891. GUILANDINA BONDUC L. Cæsalpiniaceæ.
(*Caesalpinia bonducella* Fleming.)

See S. P. I. Nos. 33570 and 34671 for previous introductions and description.

38892 to 38968.

From Bahia, Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Quoted notes by Messrs. Dorsett, Shamel, and Popenoe, except as otherwise indicated.

38892. Eriochloa subglabra (Nash) Hitchc. Poaceæ.
(*Monachne subglabra* Nash.) **Capim Angolinha.**

"*Capim Angolinha*, or 'small Angola,' as the name signifies. This somewhat resembles the common *Angola* or *Para* grass, but is characterized by finer growth. It is not grown so extensively as *Angola* in the region around Bahia, and little is known concerning its probable value, but it is considered worthy of a trial in this country."

Plants.

38893 to 38907. Saccharum officinarum L. Poaceæ. **Sugar cane.**

"Obtained from the Centro Agricola, at Bahia, Brazil, through the courtesy of Dr. V. A. Argollo Ferrão."

38893. Cayana seedling No. 1.
38894. Cayana seedling No. 2.
38895. Cayana seedling No. 3.
38896. Cayana seedling No. 4.
38897. Cayana seedling No. 5.
38898. Cayana seedling No. 6.
38899. Cayana seedling No. 7.
38900. Cayana seedling No. 8.
38901. Cayana seedling No. 9.
38902. Cayana seedling No. 10.
38903. Cayana seedling No. 11.
38904. Cayana seedling No. 13.
38905. Cayana seedling No. 14.
38906. Cayana seedling No. 17.
38907. Seedling of *Manteiga*, meaning "butter."

38908. Ananas sativus Schult. f. Bromeliaceæ. **Pineapple.**

"These plants are of the variety commonly cultivated in the vicinity of Bahia, Brazil, where they are known under the name of *Abacaxi*. The pineapples of this region are of such excellent quality that they have become, along with those of Pernambuco, famed throughout Brazil. During our stay in 1913–14 we were impressed by their excellence and thought it desirable to try the variety in North America, to see if it would retain its quality in other regions. By some the superiority of Bahia and Pernambuco pineapples is considered due to the peculiarly favorable conditions of climate and soil rather than to any superiority of the varieties cultivated."

38909 to 38922. Poaceæ. **Bamboo.**

"A collection of bamboos obtained from the Centro Agricola at Bahia, Brazil, through the courtesy of Dr. V. A. Argollo Ferrão. This collection has been assembled by Dr. Argollo from southern Europe as well as local sources."

38909 to 38911. Bambos sp.

38909. B. 1.
38910. B. 2.
38911. B. 3.

38912 and 38913. Phyllostachys spp.

38912. Phyllostachys sulfurea (Carr.) A. and C. Rivière.

"This has yellow stems scarcely so robust as typical *P. mitis*, but otherwise almost identical." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 151–152.*)

38892 to 38968—Contd. (Quoted notes by Mr. Dorsett and others.)

38913. PHYLLOSTACHYS PUBERULA NIGRA (Lodd.) Houzeau.
(PHYLLOSTACHYS NIGRA Munro.)

"Stems varying from 10 to 20 feet high in different parts of the country and from one-half inch to 1¼ inches in diameter, very hollow; at first green, they become with age quite black, the branchlets usually mottled. Leaves in plumelike masses, usually 2 to 3½ inches long, one-fourth to five-eighths inch wide (sometimes larger), of thin texture, dark green above, rather glaucous beneath, smooth on both surfaces, the margins roughened with minute teeth; secondary veins 3 to 6 each side of the midrib. When quite young there is a slight downiness at the base of the midrib beneath. The leaf sheath is terminated by a few erect bristles.

"Native of China and Japan and one of the most elegant of bamboos; very distinct because of its black stems. It is quite a hardy species when once established, although it grows much larger in hotter climates. It is the oldest of Phyllostachys in English gardens and according to Loudon was 7 feet high in the Horticultural Society's gardens in 1837." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 152.*)

38914. ARUNDINARIA HINDSII Munro.

Received as *Bambos erecta*.

"The stems tufted, 8 to 10 feet high, round, quite erect, up to 1 inch diameter, dark olive green, at first covered with a waxy bloom; joints often 8 to 10 inches apart; central pipe large. Branches erect, forming dense clusters at each joint. Leaves mostly erect, dark green above, rather glaucous beneath, smooth on the surfaces, but with numerous bristlelike teeth on one margin and a few scattered ones on the other; the longest are 8 to 9 inches long, the broadest three-fourths to 1 inch wide; the average width is from one-fourth to five-eighths inch, tapered at the base, the apex long, tail-like. Secondary veins 4 to 6 each side the midrib.

"Native of Japan, cultivated in England since about 1875. It flowered in 1910 and 1911. It is one of the least elegant of bamboos, similar in foliage to *Arundinaria graminea* but less copiously leafy and with darker leaves. The stems and leaves are also stouter and darker green, the habit is less dense, and the plants do not run so rapidly." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 216.*)

38915. SASA TESSELLATA (Munro) Makino and Shibata.
(BAMBUSA TESSELATA Munro.)

"Stems 2 to 3 feet high, one-eighth to one-sixth inch in diameter, with a very small hollow up the center; the joints 1 to 3 inches apart. Stem sheath persistent, 8 to 10 inches long, clasping not only that part of the stem above the joint from which it springs but also portions of the two or three stem sheaths above it; it is fringed with hairs. Leaves somewhat ribbed, of varying size, the largest 18 inches long and 3 to 4 inches wide in the middle; abruptly tapered at the base, very slenderly pointed, dark green above, glaucous beneath. The larger leaves have 15 to 18 secondary veins at each side of the midrib, which is yellow, and tucked under one side of the midrib, especially toward the base, is a line of pale hairs.

38892 to 38968—Contd. (Quoted notes by Mr. Dorsett and others.)

"Native of China, cultivated in England since 1845, probably before. It is the most striking of dwarf bamboos, with larger leaves than any other, tall or dwarf, and forms broad, rounded masses, the outer stems of which arch outward to the ground, and out of which spring each summer the spikelike new growths. It has never been known to flower under cultivation. Very hardy. It differs from *A. palmata* in the dwarfer habit but larger leaves." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 219,* under *Arundinaria ragamowski.*)

38916 and 38917. BAMBOS sp.

38916. B. 4. **38917.** B. 5.

38918. BAMBOS AUREA-STRIATA Regel.

38919 and 38920. PHYLLOSTACHYS spp.

38919. PHYLLOSTACHYS AUREA A. and C. Rivière.

"Stems pale yellowish green, 10 to 15 feet high in this country, stiffly erect, growing in tufts and spreading slowly, the joints often 5 or 6 inches apart, except at the base, where they are crowded. Beneath each joint there is a curious swollen band, about one-fourth inch wide, which distinguishes this from all other hardy bamboos. Leaves 2 to 4½ inches long, one-third to seven-eighths inch wide, broadly tapered at the base, slenderly pointed, dark green above, glaucous beneath, smooth on both surfaces, minutely toothed on the margins; secondary nerves 4 or 5 each side the midrib; stalk one-sixth inch or less long; the leaf sheath surmounted by two tufts of bristles at the summit.

"Native of Japan, cultivated in Europe since the 'seventies' of last century. It flowered at Bitton with Canon Ellacombe, and with the late Signor Fenzi, at Florence, in 1876. It is a pleasing bamboo if planted in a goodly sized mass, although not so graceful as the majority. It is only likely to be confused with *P. mitis*, which is, however, a taller bamboo without the crowded joints at the base of the stem and without the swollen band beneath the joint, which is so distinctive a character in *P. aurea.* (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 149–150.*)

38920. PHYLLOSTACHYS BAMBUSOIDES MARLIACEA Houzeau. (*Phyllostachys quilioi marliacea* Bean.)

"Stems 18 to 20 feet high in this country, three-fourths to 1¼ inches thick at the base, deep green. Branches long; stem sheaths pinkish when young, conspicuously mottled with deep purple. Leaves among the largest in the hardy Phyllostachys group, varying from 2½ to 6 inches long, one-half to 1¼ inches wide (occasionally they are even larger), bright green above, glaucous beneath; smooth except for some down at the base of the midrib beneath; one margin toothed; secondary veins 5 to 7 each side of the midrib; leaf sheath with a conspicuous tuft of bristles at the top, one-fourth to one-half inch long.

"Native of Japan, introduced into France by Admiral Du Quilio in 1866. It is one of the finest of the hardy bamboos,

38892 to 38968—Contd. (Quoted notes by Mr. Dorsett and others.)

very hardy and free growing. *P. viridi-glaucescens* is the only species with which, in the adult stage, it is likely to be confused, and from that species it is distinguished by the mottled leaf sheaths (in *P. viridi-glaucescens* they are simply striated or tinged with purple), by the larger leaves, and longer branches.

"Var. *marliacea* (*P. marliacea* Mitford). Marliac's bamboo. A form distinguished by the curious wrinkling of the stems, especially towards the base. It does not appear to be so vigorous as the species, and behaves more like *P. mitis* in regard to hardiness." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 152,* under *P. quilioi.*)

38921. Arundinaria simonii variegata Hooker.

"Stems up to 18 feet high, round, very hollow, from 1 to 1½ inches in diameter at the base, the outer ones arching outwards. Stem sheaths rather persistent, the largest 8 to 10 inches long, purplish when young, hairy at the margins, very glazed within. Leaves narrow oblong, broadly wedge shaped at the base, with long, tapered points, 3 to 12 inches long, one-third to 1¼ inches wide, vivid green above, glaucous on one side of the midrib beneath, rather greener the other; secondary veins 4 to 7 each side of the midrib.

"Native of China, introduced to France by M. Simon in 1862. A very vigorous bamboo, which spreads rapidly by means of its underground suckers, and, with the exception of *A. fastuosa*, the tallest of our hardy sorts. It bears some resemblance to that species (but differs in the more persistent stem sheaths, in the lack of short, crowded branches at each joint, and in its less tufted habit, as well as in its rampant underground suckers). *A. simonii* flowered all over the country between 1903 and 1905. For many years previous to these dates odd stems had flowered and occasionally borne seed without any damage to the plants, but then came the flowering of the entire plants, none of which ever recovered. In gardens now *A. simonii* is only known by small plants raised from the seed then obtained.

"Var. *variegata* Hooker (*Bambusa albo-striata* Hort.). In this variety some of the leaves are striped with white, the leaves so marked being very small and narrow. The full-sized green leaves do not differ from those of the type. This variety has not yet flowered, except partially, in this country. It is of little value." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 219.*)

38922. Bambos sp.

B. 6.

38923 to 38927. Musa paradisiaca sapientum (L.) Kuntze. Musaceæ. **Banana.**

"Presented by Dr. V. A. Argollo Ferrão.

"A collection of bananas from Bahia, Brazil. This collection comprises the most important varieties cultivated at Bahia."

38923. *Anã* or *d'Agua.*

38892 to 38968—Contd. (Quoted notes by Mr. Dorsett and others.)

38924. "*Maçã* (apple). A dessert banana, one of the most popular of all, and one of the commonest in the markets. Said to do best on sandy soil, the fruits being hard and of poor texture on clayey soil. It fruits in less time than most other varieties."

38925. "*Prata* (silver). A medium-sized banana, white fleshed, and of good quality. One of the favorites among the natives."

38926. "*São Thomáz.* A short, very plump variety, produced in short, compact bunches. It is usually baked or cooked in some form."

38927. "*Maranhão.* This is also known as *Poucos e Boas* (few and good). A long, slender fruit, usually eaten cooked. The bunches are slender and produce fewer fruits than the average."

38928 to 38942. Citrus spp. Rutaceæ.

Plants.

38928. Citrus sinensis (L.) Osbeck. **Navel orange.**

Presented by Dr. V. A. Argollo Ferrão.

"*Laranja selecta de umbigo.*"

38929. Citrus sinensis (L.) Osbeck. **Navel orange.**

"This tree was presented by Col. Demetrio Luiz de Souza, of Cruz do Cosme, one of the suburbs of Bahia. Col. Demetrio is one of the most successful propagators of the navel orange, and annually buds considerable numbers. This specimen is a selected bud chosen from his nursery."

38930. Citrus sinensis (L.) Osbeck. **Navel orange.**

"A navel orange tree budded from tree 1–1–3 in the grove of Dr. Fortunato da Silva, at Cabulla, Bahia. The bud was inserted on a 1-year-old budded navel obtained for us by Dr. V. A. Argollo Ferrão. For description of this selection, see S. P. I. No. 37754, under which bud wood from the same tree is listed."

38931. Citrus limetta Risso. **Sweet lime.**

"A budded tree of the *lima doce*, or sweet lime, from the grove of Dr. Fortunato da Silva, Cabulla, Bahia. The sweet lime is popular among Brazilians; in form it is broader and shorter than a lemon, and the pulp, while very juicy, is almost devoid of acidity. It is eaten out of hand or is used to prepare a refreshing drink. It is hardly likely that it could vie in popularity with either the lime or lemon in the United States."

38932. Citrus sp. **Lime orange.**

"Budded tree of the *laranja lima*, or lime orange. Bud wood was obtained from the grove of Col. João de Teive e Argollo at Agua Comprida, about 12 miles from Bahia, and the buds inserted on navel-orange stock. This fruit is described under S. P. I. Nos. 37784 to 37786."

38933. Citrus limetta Risso. **Sweet lime.**

"Budded tree of the sweet lime; buds taken from tree 1-1-7 in the grove of Col. Frederico da Costa, Matatu, near Bahia. See S. P. I. No. 37773 for description."

38892 to 38968—Contd. (Quoted notes by Mr. Dorsett and others.)

38934 to 38937. CITRUS SINENSIS (L.) Osbeck.

Plants.

38934. **Navel orange.**

"A young budded tree of navel orange No. 2–11–1, taken from the grove of Col. Frederico da Costa at Matatu, near Bahia. This type of fruit is described under S. P. I. No. 37776."

38935. **Navel orange.**

"Young budded tree of navel orange No. 2-9-5, from the grove of Col. Frederico da Costa at Matatu, near Bahia. This selection is described under S. P. I. No. 37768."

38936. **Selecta orange.**

"*Laranja selecta*, obtained from Dr. Miguel de Teive e Argollo's place, Roma, Bahia. See S. P. I. No. 36947 for description of this variety."

38937. **Orange.**

"The tree from which this bud was taken is growing in the orchard of Col. Demetrio Luiz de Souza, at Cruz do Cosme, near Bahia. Col. Demetrio says that it was budded from a navel tree, but it has evidently reverted and is now producing seedy oranges without navels, but otherwise of the same character as the Bahia navel orange. It is interesting because of this fact, and should be planted in Florida or California to see if it will maintain its present character."

38938 to 38940. CITRUS sp.

Plants.

38938. "Seedlings of *laranja africana*, a large, pummelolike fruit, which is used here principally as stocks for budding to the navel orange. It is not common in this region."

38939. "*Laranja tanja*, another large citrus fruit, resembling a poor pummelo in character. It is used as stock on which to bud the navel orange and for this purpose is considered good, though it is not as widely used as *laranja da terra*, or bitter orange."

38940. "The *limão doce*, or sweet lemon, a fruit which is popular in this region. It resembles an ordinary lemon, but is of a very sweet flavor and entirely devoid of acid."

38941 and 38942. CITRUS NOBILIS DELICIOSA (Tenore) Swingle. **Tangerine.**

Plants.

38941. "A tree of the common tangerine grown at Bahia, which does not appear to be different in any important respects from some of the tangerines cultivated in the United States. It should be tried in California or Florida in comparison with local tangerines to prove its quality."

38942. "The *laranja cravo*, apparently very similar to the tangerine, if not identical with it. It is popular in Bahia, and is generally said to be larger and slightly different from the tangerine, though it appeared to us that the two names were used rather loosely and sometimes even applied to the same thing. For trial in California and Florida."

38892 to 38968—Contd. (Quoted notes by Mr. Dorsett and others.)

38943. Spondias sp. Anacardiaceæ.

"A tree presented by Dr. V. A. Argollo Ferrão. The species is one common at Bahia and is esteemed in this region. Its fruits have not been seen by any members of our party, hence its identity can not be determined, but it is probably one of the commoner tropical species. The fruits are said to be the size of hen's eggs, orange yellow in color, and of good flavor."

Plant.

38944. Psidium araça Raddi. Myrtaceæ. **Guava.**

"An uncommon species of guava, known here as *Araça*, presented by Dr. V. A. Argollo Ferrão. It is said to have a large fruit and few seeds. The leaves are different in character from most of the guavas. Should be tried in California and Florida."

Plants.

38945. Aleurites moluccana (L.) Willd. Euphorbiaceæ. **Lumbang.**
(*Aleurites triloba* Forst.)

"One of the candle-nut or wood-oil trees, found growing in a garden near Bahia. The tree was full of fruit at the time of our visit. Should be tried in comparison with the wood-oil trees now being sent out by this office."

Plants.

For an illustration of the lumbang tree growing in Brazil, see Plate V.

38946. Panicum sp. (?) Poaceæ.

"*Capim cayana.* A forage grass grown in this region. This is a large, coarse grass grown in very low and wet lands. It can be rooted from single-eye cuttings and grows very rapidly. Should be given a trial in moist regions of the South."

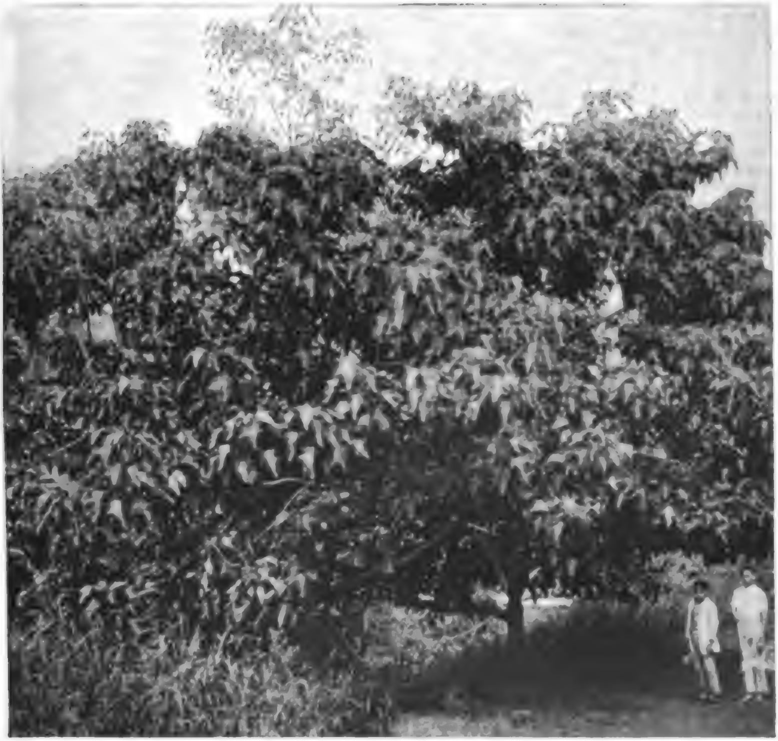
Plants.

38947 to 38968. Manihot esculenta Crantz. Euphorbiaceæ.
(*Manihot utilissima* Pohl.) **Cassava.**

"A collection of varieties of mandioca or cassava presented by Dr. V. A. Argollo Ferrão. This set includes varieties which have been assembled at the Centro Agricola from all parts of Bahia State and should be of interest for trial in the southern United States. The varieties, as a rule, vary but little in appearance and are difficult to tell apart in some cases. Those which have the word *aipim* before the varietal name are sweet cassava and are eaten boiled as a vegetable without previous treatment. Others are bitter and are used for the preparation of cassava meal; they must be treated before using to remove the prussic acid."

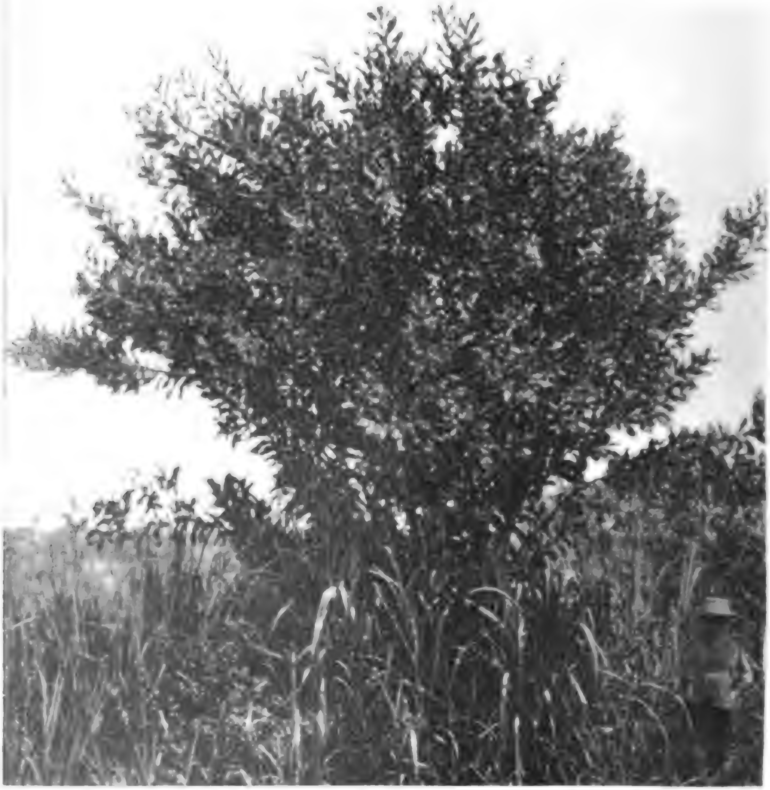
Plants.

38947. No. 1. *Mulatinho.*
38948. No. 2. *Aipim Pacara.*
38949. No. 4. *Aipim Varudo.*
38950. No. 6. *Aipim Paraguay.*
38951. No. 7. *Gamadura.*
38952. No. 8. *Aparecida.*
38953. No. 9. *Landy.*
38954. No. 10. *Vassoura.*
38955. No. 11. *Prato Cheio.*
38956. No. 12. *Itapicuru.*
38957. No. 13. *Saracura.*
38958. No. 14. *Milagrosa.*



THE LUMBANG (ALEURITES MOLUCCANA (L.) WILLD.) GROWING IN BAHIA, BRAZIL. (SEE S. P. I. NO. 38945.)

An oil-nut tree growing beside the road on the plantation of Coronel Frederico da Costa at Bahia. The tree has pale-green foliage and the fruits contain nutlike seeds, from which lumbang oil is expressed. The kernel is somewhat poisonous, being strongly purgative in effect when eaten. Lumbang oil has been largely used in the manufacture of soap and is now being investigated as a possible paint oil. The tree is known in Hawaii as the kukui and as the candlenut in some other parts of the world. (Photographed by Messrs. Dorsett, Shamel, and Popenoe, December 25, 1913; P14568FS.)



THE QUEENSLAND NUT (MACADAMIA TERNIFOLIA MUELLER), AS GROWN IN CUBA. (SEE S. P. I. NO. 39144.)

This Australian tree has grown very well in southern California and in Florida, having produced good crops at about 7 years of age. The nuts are about the size of large marbles and of a most delicious flavor, resembling that of Brazil nuts, but more delicate. This tree (S. P. I. 21249) was introduced in the form of a seed from Brisbane in 1907 and planted out in Cuba in January, 1909, by H. A. Van Hermann, on whose estate it is standing. (Photographed by Wilson Popenoe, Santiago de las Vegas, Cuba, July 18, 1914; P16009FS.)

38892 to 38968—Continued.

38959. No. 15. *São Pedro Branca.*
38960. No. 16. *Babu Branca.*
38961. No. 17. *Vassoura Molle.*
38962. No. 18. *Babu Preto.*
38963. No. 19. *Tutano.*
38964. No. 20. *Rio de Janeiro.*
38965. No. 21. *Crioulinho.*
38966. No. 22. *Itaparica.*
38967. No. 23. *Mangue.*
38968. No. 24. *Gravatão.*

38969. PLAGIANTHUS BETULINUS A. Cunningh. Malvaceæ. **Ribbon wood.**

From Epsom, Auckland, New Zealand. Presented by Mr. D. Petrie. Received July 25, 1914.

"From the southern part of our colony and should be hardy enough for your lowlands. The tree is diœcious and it would be interesting to note how many turn out male and how many female. The tree naturally grows on alluvial flats and by the side of streams that meander through such stations. I doubt if it would thrive anywhere else." (*Petrie.*)

"A tree, varying from 30 to 60 feet in height, with terminal panicles of white flowers. The young shrub forms a mass of tortuous interlacing branches. Leaves lobed or coarsely toothed. Petals rounded at the tips. North and South Island, Chatham Islands." (*Laing and Blackwell, Plants of New Zealand.*)

38970. FEIJOA SELLOWIANA Berg. Myrtaceæ. **Feijoa.**

From Pasadena, Cal. Presented by Mr. D. W. Coolidge, Coolidge Rare Plant Gardens. Received at the Plant Introduction Field Station, Chico, Cal.

"This is a seedling from a fruit that measured 3¼ by 2¼ inches. Named *Feijoa macrocarpa* by Dr. Franceschi, of Santa Barbara, Cal." (*Coolidge.*)

38971 to 38973. LINUM spp. Linaceæ. **Flax.**

From Paris, France. Purchased from Vilmorin-Andrieux & Co. Received July 30, 1914.

38971. LINUM PERENNE L.

Var. *album* Hort.

A white form of the perennial flax, which grows about 2 feet high and is generally cultivated as an ornamental.

38972. LINUM GRANDIFLORUM Desf.

Var. *rubrum* Hort.

38973. LINUM USITATISSIMUM L.

38974. PRUNUS UMBELLATA Elliott. Amygdalaceæ. **Plum.**

From Brooksville, Fla. Collected by Mr. William Gomme, assistant farm superintendent in charge, Plant Introduction Field Station, Brooksville, Fla. Received August 3, 1914.

"Seeds from Mr. Raymond Robbins, Snow Hill."

A tree, sometimes 15 to 20 feet high, with a short, often crooked or inclining trunk 6 to 10 inches in diameter, slender, unarmed branches forming a wide, compact, flat-topped head. Wood heavy, hard, close-grained, dark reddish

38974—Continued.

brown, with thick, lighter colored sapwood of about 30 layers of annual growth. The fruit is used in large quantities in making jellies and jams. Sandy bottom land and along the borders of the forest of long leaf pine, usually in the neighborhood of the coast, from South Carolina to western Louisiana and southern Arkansas. (Abridged from *Sargent, Trees of North America.*)

38975 and 38976. BELOU MARMELOS (L.) Lyons. Rutaceæ. **Bael.**
(*Aegle marmelos* Correa.)

From Nyaunglebin, Burma, India. Presented by Rev. E. N. Harris, American Baptist Foreign Mission Society. Received July 30, 1914.

38975. "Small variety." 38976. "Large variety."

38977. TOLUIFERA PEREIRAE (Klotzsch) Baill. Fabaceæ.
(*Myroxylon pereirae* Klotzsch.) **Balsam of Peru.**

From Havana, Cuba. Presented by Mr. J. Pascual Baldwin, through Mr. W. E. Safford, of the Bureau of Plant Industry. Received July 24, 1914.

Source of *balsamo blanco*, or *balsamito*.

38978. PRUNUS ARMENIACA L. Amygdalaceæ. **Apricot.**

From Somma Vesuviana, Italy. Presented by Mr. Gustav Eisen. Received July 27, 1914.

"*Pelese* apricot seeds from Somma Vesuviana." (*Eisen.*)

See S. P. I. No. 38778 for previous introduction and description.

38979 and 38980. BRACHYCHITON spp. Sterculiaceæ.

From Brisbane, Australia. Presented by Mr. Leslie Gordon Corrie, Queensland Acclimatization Society. Received July 30, 1914.

38979. BRACHYCHITON ACERIFOLIUM Mueller. **Flame tree.**
(*Sterculia acerifolia* Cunningh.)

This species of Sterculia, which is a native of New South Wales and Queensland, is a large evergreen tree reaching a height of about 60 feet. The wood of this species, as with all other sterculias, is soft and light and has but a very limited use. The flowers are brilliant scarlet in color and are produced in great abundance. This tree has been introduced into this country and may now be seen growing on streets and lawns in California. A gummy substance exudes from the trunk of this tree, which, of any of the well-known gums, most resembles the tragacanth. (Adapted from *Bailey, Cyclopedia of American Horticulture*, and *Maiden, Useful Native Plants of Australia.*)

38980. BRACHYCHITON LURIDUM Mueller.
(*Sterculia lurida* Muell.)

"This tree, which is commonly known as the *sycamore* or *hat tree*, is a native of northern New South Wales and Queensland. The timber is white, soft, not durable, is easily split, and is occasionally used for shingles. The bark of this tree yields a strong and valuable fiber, similar to bass, or Russian matting." (*Maiden, Useful Native Plants of Australia.*)

38981 and 38982. MANGIFERA INDICA L. Anacardiaceæ. **Mango.**

38981. From Santiago de las Vegas, Cuba. Collected by Mr. Wilson Popenoe, Agricultural Explorer for the Department of Agriculture. Cuttings received August 4, 1914.

"(No. 5. July 30, 1914.) *Luisa*, a mango of the Philippine type of which the parent tree is growing in the Casa Vivienda garden at the Central Nueva Luisa, Jovellanos, Matanzas Province. Scions have been taken from the original tree and propagated by Mr. A. H. Van Hermann, of this place, from whom these cuttings were obtained.

"The Philippine mango as found here in Cuba is an entirely distinct race from the other mangos found on the island. The type can be distinguished from the others grown here by the pale, grayish mahogany color of the young leaves, the venation of the leaves, the slender, compressed fruits, terminating in a sharp point at the apex, and the thin husk which surrounds the seed.

"The *Cecil* mango of Miami, Fla., is a representative of this race and exhibits the characteristics which are noticeable here in Cuba. The race is believed originally to have come from the Philippines.

"While there is remarkably little variation among the seedlings of this race, there are frequently noticeable differences in the size, brightness of color, and flavor of the fruit. *Luisa* is described by Prof. F. S. Earle, who was, I believe, the first to observe it, as a fruit 4 to 5 inches in length, dull yellowish green in color, with little fiber and a remarkably good flavor. It is considered by Prof. Earle the best mango of the Philippine type which he has seen." (*Popenoe.*)

38982. From Havana, Cuba. Presented by Mr. Charles Hernandez, Director General of Posts and Telegraphs. Received August 3, 1914.

"From the mango grove in the Quinta Arlles near Cienfuegos. The most appreciated of all the kinds of mangos that grow on this island; it is very much looked for by the people of Cienfuegos, and therefore the consumption is limited to only that portion of the country." (*Hernandez.*)

38983. TRIFOLIUM SUBTERRANEUM L. Fabaceæ. **Clover.**

From Adelaide, Australia. Presented by Mr. W. Champion Hackett. Received July 29, 1914.

38984. MEDICAGO SATIVA L. Fabaceæ. **Alfalfa.**

From Valparaiso, Chile. Presented by Mr. Alfred A. Winslow, American consul.

"Seed of 1913–14 harvest." (*Winslow.*)

38985. VOANDZEIA SUBTERRANEA (L.) Thouars. Fabaceæ. **Juga bean.**

From Johannesburg, Transvaal, Union of South Africa. Presented by Mr. J. Burtt Davy. Received August 1, 1914.

"Juga beans; these are proving useful in our bush-veldt country (below 4,000 feet altitude) for stock food; they are crushed and fed to cattle and pigs.

38985—Continued.

Our natives are very fond of these beans, and when well cooked they are considered quite palatable by white people." (*Davy.*)

38986 to 38990.

From the Philippine Islands. Presented by Mr. H. R. Reed, acting superintendent, Singalong Experiment Station. Received August 7, 1914. Quoted notes by Mr. Reed.

38986. ALEURITES MOLUCCANA (L.) Willd. Euphorbiaceæ. **Lumbang.** (*Aleurites triloba* Forst.)

"A large tree, fruit fleshy, 2 inches long, containing one or two hard-shelled, oily seeds. Oil is extracted from the seeds, and the refuse is used as fertilizer in the Philippines."

38987. CLITORIA TERNATEA L. Fabaceæ. **Butterfly pea.**

"A climbing, somewhat woody vine, stems sometimes one-third of an inch in diameter. Flowers numerous, attractive, deep blue, pale blue, or white."

38988. LACTUCA SATIVA L. Cichoriaceæ. **Lettuce.**

"A variety introduced from China. It grew especially well at the Singalong Experiment Station. Leaves are light green and tender."

38989. PASSIFLORA FOETIDA L. Passifloraceæ. **Passion fruit.**

"A herbaceous ornamental vine with white or pinkish flowers about 1 inch in diameter. Introduced into the Philippines from tropical America."

38990. SOJA MAX (L.) Piper. Fabaceæ. **Soy bean.** (*Glycine hispida* Maxim.)

"A variety introduced from China. This variety was very productive of seed at the Singalong Experiment Station."

38991 to 39101.

From Darjiling, India. Collected by Mr. L. J. Mackintosh, Clover Cot, at the request of Mr. J. F. Rock, collaborator, of the Bureau of Plant Industry.

38991. ACACIA CATECHU (L. f.) Willd. Mimosaceæ. **Catechu.**

"This species of Acacia is a tree which attains a height of about 80 feet with a stem circumference of 9 feet. The wood is hard, heavy, extremely durable, and is used locally for underground posts particularly and for millwork. The extract prepared from the bark and the heartwood is one of the catechus of medicine or cutch of tannery. This tree may be found growing from India to East Africa at altitudes as high as 5,000 feet." (*Mueller, Select Extra-Tropical Plants, p. 3.*)

38992. ACER sp. Aceraceæ. **Maple.**

38993. ACONITUM FEROX Wallich. Ranunculaceæ. **Aconite.**

"This species is a native of the temperate subalpine Himalayas and may be found growing from Sikkim to Garwhal, at altitudes of 10,000 to 14,000 feet. The stem is 3 to 6 feet in length and is puberulous and leafy. The flowers are large and of a pale dirty-blue color. The five erect follicles are usually densely villous, and in some Garwhal specimens glabrous." (*Hooker, Flora of British India, vol. 1, p. 28.*)

38991 to 39101—Continued.

38994. Aconitum luridum Hook. f. and Thoms. Ranunculaceæ. **Aconite.**

"This Aconitum is a native of the alpine east Himalayas and may be found growing around Sikkim at altitudes of 14,000 feet. The stem is 2 to 3 feet in length, slightly pubescent, and has very few leaves. The radical leaves are 2 to 3 inches in diameter. The flowers are dull red in color and the sepals are brown tomentose." (*Hooker, Flora of British India, vol. 1, p. 28.*)

38995. Albizzia sp. Mimosaceæ.

38996. Albizzia odoratissima (L. f.) Benth. Mimosaceæ.

"This is a large, deciduous tree, met with in the sub-Himalayan tract from the Indus eastward, ascending to 3,000 feet in altitude. This tree yields a dark-brown gum in rounded tears, tasteless but soluble in water. The bark is boiled by the Gâro people, together with the leaves of the *Dúgál* (*Sarcochlamys pulcherrima*) and the yarn of their cloth, to give the latter a brownish color. As a medicine the bark is applied externally and is considered efficacious in leprosy and in inveterate ulcers. When boiled in *ghi* the leaves are used by the Santals as a remedy for coughs. The timber made from this tree is used in the manufacture of wheels, oil mills, and furniture. The timber is excellent for all purposes requiring strength and durability, and is considered one of the most valuable of jungle timbers." (*Watt, Dictionary of the Economic Products of India.*)

38997. Alnus nepalensis D. Don. Betulaceæ. **Alder.**

"This tree, which is a native of the Himalayas, reaches a height of about 60 feet and may be found growing at altitudes between 3,000 and 9,000 feet. The bark of this *Alnus* is used for tanning and dyeing." (*Mueller, Select Extra-Tropical Plants, p. 33.*)

38998. Amoora rohituka (Roxb.) Wight and Arn. Meliaceæ.

"This is an evergreen tree with a large crown of branches, which is widely distributed over the Malay Archipelago and the Philippine Islands. The fruit is smooth, pale yellow or red in color, and from 1 to 1½ inches in diameter. It is rather soft and fleshy, 3-celled, and 3-valved. A sort of economic oil is extracted from the seed of this fruit." (*Hooker, Flora of British India, vol. 1, p. 559.*)

38999. Anemone rupicola Camb. (?) Ranunculaceæ. **Anemone.**

"This species of Anemone is a native of the inner alpine valleys of the Himalayas and may be found growing from Gores to Kashmir to Sikkim at altitudes of 12,000 to 15,000 feet. The radical leaves are long petioled, and the segments are more or less petioled and sharply incised or 3-lobed. The sepals are 1 to 1½ inches in length, broadly oval, and downy on the outside. The flowers, which are 1 or 2 in number, are large and very showy." (*Hooker, Flora of British India, vol. 1, p. 8.*)

39000. Bauhinia purpurea L. Cæsalpiniaceæ. **Orchid tree.**

A small to middle-sized tree; leaves coriaceous, glabrous, somewhat cordate, cleft one-third to one-half their depth, 9 to 11 nerved; lobes obtuse or somewhat acute; flowers in few-flowered axillary and terminal corymbs, fragrant; petals red, one streaked with white on the claw, oblanceolate, acute; fertile stamens, 3 to 4, very long, the rest sterile or abortive; pod 1 foot long. India, Burma, China. One of the finest flower-

38991 to 39101—Continued.

ing small trees in southern Florida. Flowers are borne in the greatest profusion, 3 to 5 inches across, varying in color from almost white to a shade of rich purple, and marked and shaded with many tones. The plant is robust and hardy, growing to a height of 15 feet in less than two years, and blooms all winter and spring. (Adapted from *Bailey, Standard Cyclopedia of Horticulture.*)

39001. BERBERIS sp. Berberidaceæ. **Barberry.**

39002. BETULA CYLINDROSTACHYA Wallich. Betulaceæ. **Birch.**

"A tree native of the Himalayas and may be found growing there at altitudes of 3,000 and 10,000 feet. It reaches a height of about 60 feet, and thrives well along forest streams. The wood is hard, strong, and durable." (*Mueller, Select Extra-Tropical Plants.*)

39003. BOSCHNIAKIA HIMALAICA Hook. f. and Thoms. Orobanchaceæ.

A parasite on Rhododendron roots.

"This is a plant 6 to 18 inches in height which inhabits the temperate and subalpine regions of the Himalayas at altitudes of 8,000 to 10,000 feet at Kumaon and 10,000 to 13,000 feet at Sikkim. The stem of this plant, which is often as thick as a man's thumb, is pale brown in color and is tuberous at the root. The scales are numerous and rigid and range from one-half to three-fourths inch in length. This species differs widely from the Asiatic species *B. glabra* in its much larger size, the flowers being twice as large and the fruit three times as large." (*Hooker, Flora of British India, vol. 4, p. 327.*)

39004. CERASTIUM sp. Silenaceæ.

39005. CHAEROPHYLLUM VILLOSUM Wallich. Apiaceæ.

Distribution.—An herb growing about 4 feet tall, with long white hairs on the stem, found in the Himalayas at an altitude of 5,000 to 12,000 feet, and in the Khasi Hills, in India.

39006. CHRYSANTHEMUM ATKINSONI C. B. Clarke. Asteraceæ. **Chrysanthemum.**

Distribution.—A strongly scented purple-flowered chrysanthemum found on the slopes of the Sikkim Himalayas, in northern India, at an altitude of 13,000 to 15,000 feet.

39007. CLEMATIS MONTANA Hamilton. Ranunculaceæ. **Clematis.**

"This species of Clematis is a woody climber which inhabits the temperate Himalayas from the Indus to Brahmaputra at altitudes as high as 12,000 feet. Always above 8,500 feet in Sikkim and in the Khasi Hills and Maniput, above 4,000 feet." (*Watt, Dictionary of the Economic Products of India.*)

"A deciduous climber of vigorous habit, growing at least 20 feet high; stems smooth except when quite young. Leaves composed of 3 leaflets on a common stalk 2 to 4 inches long, the leaflets short stalked, ovate to lanceolate, pointed, variously and unequally toothed, 1 to 4 inches long, half as wide. Flowers solitary, pure white, 2 to 2½ inches across, each borne on a smooth stalk 2 to 5 inches long. Sepals 4, spreading, oval. Seed vessel elliptical, surmounted by a plumose style, 1½ inches long. Native of the Himalayas, introduced by Lady Amherst in 1831.

38991 to 39101—Continued.

It is quite hardy near London, and is undoubtedly one of the loveliest of all climbers. The flowers appear in May, and being produced singly on long stalks, can only be confused with the white variety of *C. alpina*, and that is not only very different in habit and vigor, but has the petal-like parts of the flower characteristic only of the Atragene group. *C. montana* is a valuable plant for covering arbors, pergolas, and especially verandas, where its long shoots can be allowed to hang down and form a sort of curtain." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 363–364.*)

39008. Cotoneaster microphylla Wallich. Malaceæ. **Cotoneaster.**

"This is an ornamental plant which has recently been introduced into our gardens. It is known as *Khariz lúni* in Kashmir and *Garri* in Kumaon. The wood of this species is used in the manufacture of walking sticks and baskets. When mixed with *Parretia* it is used in the construction of twig bridges in Kashmir. The fruit of this species is sweet." (*Watt, Dictionary of the Economic Products of India.*)

"An evergreen shrub, of low, spreading, or even prostrate habit, rarely more than 2 to 3 feet high unless trained. Branches often slender but rigid, woolly when young. Leaves one-fourth to one-half inch long, half or less than half as wide, ovate or obovate, deep glossy green above, grey and woolly beneath, pointed, rounded, or notched at the apex. Flowers white, one-third inch across, generally solitary (occasionally two or three). Fruit round, scarlet red, one-fourth inch in diameter. Native of the Himalayas up to 11,000 feet, introduced in 1824. This pleasing evergreen is nearly related to *C. buxifolia* on one side, and *C. thymaefolia* on the other. They may be forms of one species, but from *buxifolia* this and *C. thymaefolia* are distinguished by fewer flowers in the cluster and the dwarf habit. The present plant makes a very pretty covering for sloping banks, forming eventually a dense low thicket. Single plants make a pretty evergreen furnishing for the rock garden, but *C. thymaefolia* and *C. congesta* are to be preferred." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 413.*)

39009. Cremanthodium oblongatum C. B. Clarke. Asteraceæ.

"This is usually a robust species and is found growing in the Sikkim Himalayas, near the Tibetan frontier, at altitudes ranging from 12,000 to 16,000 feet. The leaves of this species are 2 to 2½ inches in diameter, pale beneath, with coarsely reticulated nerves. The petioles are stout, 1 to 2 inches in length, and not inflated at the base. The alternate nerves of the leaf distinguish this species from all others except *C. pinnatifidum*." (*Hooker, Flora of British India, vol. 3, p. 331.*)

39010. Erianthus rufipilus (Steud.) Griseb. Poaceæ.
(*Erianthus fulvus* Nees.)

39011. Pollinia fulva (R. Br.) Benth. Poaceæ.
(*Pollinia cumingiana* Nees.)

"From the interior of Australia. It is a sweet perennial grass, of which the cattle are so fond that they eat it closely down, thus causing it to die out. It is easily raised by redissemination." (*Mueller, Select Extra-Tropical Plants, p. 181.*)

38991 to 39101—Continued.

39012. **Erigeron multiradiatus** (Lindl.) Benth. Asteraceæ.

"This is one of the most beautiful of all the alpine Compositæ, but very variable and difficult to distinguish from forms of neighboring species, especially *E. alpina*. It is a native of grassy, wet places along the whole length of the Himalayan Range, from Kashmir, where it inhabits altitudes of 7,000 to 9,000 feet, to Sikkim, where it ascends to 12,000 feet. It is a pubescent or hirsute herb, in the small state 6 or 10 inches high, with simple scapelike leafy stems, and numerous radical leaves, and a branched leafy stem. The leaves are usually 4 to 8 inches long, oblanceolate, and narrowed into a rather long petiole." (*Curtis's Botanical Magazine, pl. 6530.*)

39013. **Erythrina arborescens** Roxb. Fabaceæ.

"A small or moderate sized tree, found in the outer Himalayas from the Ganges to Bhutan up to 7,000 feet and also in the Kashmir Hills. It is chiefly remarkable for its brilliantly colored flowers, which are usually produced before the new leaves. The wood is rather durable, though light and somewhat open grained. It does not warp or split and takes a good varnish. It is used in the manufacture of light boxes, toys, scabbards, trays, and also for firewood." (*Watt, Dictionary of the Economic Products of India.*)

39014. **Fraxinus floribunda** Wallich. Oleaceæ. **Ash.**

This Fraxinus, which is commonly known as the Nepal ash, is found growing in the Himalayas at altitudes ranging from 4,000 to 11,000 feet. This tree attains a height of about 120 feet, and the girth of stem is not uncommonly 15 feet. This tree not only serves as a timber tree but also as a fine avenue ornamental. The wood is very useful for oars, plows, and various other implements. (Adapted from *Mueller, Select Extra-Tropical Plants, p. 233.*)

"In 1876 the late Sir George King, then of the Calcutta Botanical Gardens, sent seeds of this fine ash to Kew. Of the trees raised one survives, which was cut to the ground in the winter of 1880–81, but is now about 15 feet high. Although it withstood the frosts of February, 1895, without injury and is now apparently perfectly hardy, its rate of growth with us is not such as to recommend it for general cultivation, except in the milder counties. It is one of the *ornus* group, and in the northwestern Himalayas, where it is native, reaches 80 to 100 feet in height. Its branches are without down and its leaves 10 to 15 inches long. Leaflets usually 7 or 9, oblong (terminal one obovate), tapered at both ends, 3 to 6 inches long, 1 to 2½ inches wide, sharply toothed, smooth above, downy beneath, chiefly on the midrib and veins. Main stalk grooved, stalk of leaflets one-fourth to one-half inch long. Flowers white, in large terminal panicles. It resembles some of the big-leaved forms of *F. ornus*, but the leaflets are normally much larger, more prominently ribbed beneath, and longer pointed. Introduced first, Loudon says, in 1822, but killed in the winter of 1836–37." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 568.*)

39015. **Gaultheria nummularioides** Don. Ericaceæ.

Distribution.—A procumbent shrub with small white flowers and blue-black berries, found throughout the Himalayas at an altitude of 5,000 to 9,000 feet, on the Khasi Hills in India, and in Java.

38991 to 39101—Continued.

"A dwarf evergreen shrub, 4 to 6 inches high, forming dense tufts, and spreading by underground shoots; stems slender and wiry, covered with bristles, and bearing over their whole length leaves one-quarter inch apart in two opposite rows. Leaves leathery, heart shaped, becoming smaller toward the tip of the shoot; one-quarter to five-eighths inch long, about the same wide; the lower surface and the margins are bristly, the upper side is dark, dull green and wrinkled, the lower one very pale polished green; stalk one-eighth inch or less long. Flowers produced singly in the leaf axils from the under side during August; corolla egg shaped, white or tinged with pink, scarcely one-quarter inch long.

"Native of the Himalayas; long cultivated, but still rare in gardens. It makes charming dense tufts of foliage and stems, but needs some shelter. At Kew it thrives well in a damp bed of peat in one of the recesses of the rock garden, where it has not suffered from cold since the frosts of February, 1895. Its roundish leaves, closely and regularly set in two rows, and gradually decreasing in size toward the end of the shoot, with the slender, conspicuously bristly stems, render it quite distinct from any other plant in cultivation. Increased by cuttings." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 580–581.*)

39016. GENTIANA TUBIFLORA Wallich. Gentianaceæ. **Gentian.**

Distribution.—A very low, tufted herb with large blue flowers, found in the alpine Himalayas and in Tibet.

39017. GERBERA KUNZEANA A. Br. and Asch.

39018. GYNURA ANGULOSA DC. Asteraceæ.

Distribution.—An herbaceous composite, sometimes 10 feet tall, with small flower heads and oblong leaves often 2 feet long, found on the temperate slopes of the Himalayas up to an altitude of 4,000 feet, and in the Khasi Hills, in India.

39019. IRIS CLARKEI Baker. Iridaceæ. **Iris.**

"*Iris clarkei* is obviously a member of the *sibirica* group, but differs from all the other species of that group, except *I. prismatica*, in the possession of a solid, as opposed to a hollow, stem. In all other respects it seems perhaps most closely related to the western Chinese members of the group, *I. forrestii* and *I. bulleyana*, with which it agrees in having leaves which are glaucous on the under side but polished and glossy above. The color of the flowers borne by this Iris varies greatly even in the wild state, as was proved by a second series of plants that I owe to the kindness of Mr. Cave. All shades of blue and purple may occur. In its native habitat, *I. clarkei* grows in ground that is swampy for half the year and frozen hard under snow during most of the remaining months. In cultivation it should naturally do best in damp soil, rich in humus, but for some reason or other it has proved difficult to keep, for many plants have died out after flowering. Seedlings are fairly easily raised, though the seeds do not germinate very readily and the plants are of somewhat slow growth.

"Apparently confined to a circumscribed area in the Sikkim and Bhutan region at a height of 6,000 to 11,000 feet." (Abridged from *Dykes, The Genus Iris, p. 29–30.*)

38991 to 39101—Continued.

39020. JUNCUS GRISEBACHII Buchenau. Juncaceæ.

Distribution.—A perennial Juncus growing about 2 feet tall, on the subalpine slopes of the Himalayas in Sikkim, Kumaon, and Bhutan, in northern India.

39021. MALLOTUS sp. Euphorbiaceæ.

39022. MECONOPSIS WALLICHII Hook. Papaveraceæ.

"This is undoubtedly one of the finest of the poppyworts in cultivation. It is an extremely handsome herbaceous biennial and is remarkable, being one of the few if not the only true blue-flowered poppy in cultivation at the present time. It attains a height of 4 to 7 feet and forms a perfect pyramid. It is exceedingly beautiful when in full flower. The blossoms are about 3 inches in diameter, broadly saucer shaped, pendent, and of a lovely shade of blue. The blooms always commence to open at the summit of the stem, then gradually from day to day expand, until the lowest and last bud is reached." (*The Garden, July 12, 1913.*)

39023. MEIBOMIA TILIAEFOLIA (G. Don) Kuntze. Fabaceæ.
(*Desmodium tiliaefolium* G. Don.)

Distribution.—A shrubby legume with lindenlike leaves and long racemes of large pink flowers, found in the temperate and tropical Himalayas up to an altitude of 9,000 feet in northern India.

"A semiwoody plant, which sends up annually from a woody rootstock a number of erect stems 2 to 4 feet high, more or less downy. Leaves trifoliolate, with a main stalk 2 to 3 inches long. Panicles terminal, 8 to 12 inches high, the lower section borne in the uppermost leaf axils. Flowers one-half inch long, varying from pale lilac to dark pink, borne on a slender stalk not quite so long as itself. Native of the Himalayas at 9,000 feet. It flowers from August to October, but needs a hot summer to bring out its best qualities. In cold, wet seasons the flowers do not open at all. Propagated by division of the rootstock in spring. The late Sir Henry Collett called this a 'protean plant'; the form in cultivation is one whose leaves are not very downy." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 480,* under *Desmodium tiliaefolium.*

39024. MICHELIA LANUGINOSA Wallich. Magnoliaceæ.

39025. MICHELIA sp. Magnoliaceæ.

39026. MUCUNA IMBRICATA DC. Fabaceæ.

39027. CLEMATIS ZEYLANICA (L.) Poir. Ranunculaceæ. **Clematis.**
(*Naravelia zeylanica* DC.)

"A scandent bush, very plentiful in the tropical Himalayas from East Nepal eastward to Bengal, Assam, and also distributed to Ceylon. Around Calcutta it is one of the most abundant of plants. A fiber is obtained from the stems of this species which is twisted into rough but very useful ropes." (*Watt, Dictionary of the Economic Products of India.*)

38991 to 39101—Continued.

39028. Ophiopogon intermedius Don. Liliaceæ.

Distribution.—A low, herbaceous perennial with grasslike leaves and a slender scape of small white flowers, found on the temperate slopes of the Himalayas and on the Khasi Hills in India and in Ceylon.

Of possible value for cultivation in shady locations where grasses refuse to grow.

39029. Oxyria digyna (L.) Hill. Polygonaceæ.

"This species is commonly known as the mountain sorrel. It is a small plant with an acid flavor which occurs in the alpine Himalayas at altitudes of 10,000 feet. It is found in western Tibet up to an altitude of 17,500 feet and is distributed to the mountains of Europe, north Asia, and America. This plant is sometimes eaten as a cooling medicine, and in Chamba the leaves, which have a pleasant sorrel taste, are eaten raw." (*Watt, Dictionary of the Economic Products of India.*)

39030. Parnassia sp. Saxifragaceæ.

39031. Pedicularis clarkei Hook. f. Scrophulariaceæ.

"This more or less hirsute herb is found growing in the alpine Sikkim Himalayas at altitudes ranging between 12,000 and 13,000 feet. The stem is 16 to 20 inches in height and sometimes as thick as the middle finger. The corolla tube, which is rather longer than the calyx, is of a reddish or purplish color. The lower lip of the corolla is small, narrow, and shorter than the upper." (*Hooker, Flora of British India, vol. 4, p. 310.*)

39032. Pedicularis flexuosa Hook. f.

Distribution.—An erect or decumbent herb growing 2 feet high, with pinnatifid leaves and bearing leafy spikes of rosy flowers, found on the alpine slopes of the Sikkim Himalayas in northern India at an altitude of 10,000 to 13,000 feet.

39033. Pedicularis lachnoglossa Hook. f.

Distribution.—An erect herb with a simple stem, narrow pinnatisect leaves, and racemes of small red-purple flowers, found at an elevation of 14,000 feet in the Lachen Valley of the Sikkim Himalayas in northern India.

39034. Pedicularis longiflora Rudolph.

Distribution.—A low herbaceous perennial with pinnatifid leaves and yellow flowers, found in the vicinity of Lake Baikal in Siberia.

39035. Pedicularis megalantha Don.

Distribution.—A low herb with pinnatifid leaves and lax racemes of yellow or rose-purple flowers, found on the temperate and subalpine slopes of the Himalayas at an altitude of 7,000 to 15,000 feet, from Kashmir to Sikkim, in northern India.

39036. Pedicularis mollis Wallich.

Distribution.—An herbaceous annual 3 feet high with spikes of dark purple flowers, found in the alpine Himalayas in northern India and in Tibet at an altitude of 10,000 to 14,000 feet.

39037. Pedicularis schizorrhyncha Prain.

39038. Pentagonia physalodes (L.) Hiern. Solanaceæ.
(*Nicandra physaloides* Gaertn.)

38991 to 39101—Continued.

39039. Photinia integrifolia Lindley. Malaceæ.

Distribution.—A tall shrub or small tree with corymbs of white flowers and blue berries, found on the lower slopes of the Himalayas up to an altitude of 7,000 feet and in the Khasi Hills in India.

39040. Picea smithiana (Wall.) Boiss. Pinaceæ.
(*Picea morinda* Link.)

"A lofty tree met with in the northwest Himalayas between 7,000 and 11,000 feet in Sikkim and Bhutan. The wood is white, with reddish brown tinge, and slightly harder than *Abies webbiana*. The wood is extensively used for packing cases, rough furniture, and planking. It crackles and sends out sparks when burning and is consumed very quickly but is much in demand for charcoal. The bark is used for roofing shepherds' huts, and the leaves are collected by the hill people as a manure and they are also used as litter for cattle." (*Watt, Dictionary of the Economic Products of India.*)

39041. Picrorrhiza kurroa Bentham. Scrophulariaceæ.

"A low, more or less hairy herb, with a perennial woody, bitter rootstock, common in the alpine Himalayas from Kashmir to Sikkim at altitudes of 9,000 to 15,000 feet. The root of this species is used in medicine in cases of fever and dyspepsia and as an ingredient of various purgatives." (*Watt, Dictionary of the Economic Products of India.*)

39042. Piptadenia oudhensis Brandis. Mimosaceæ.

39043. Piptanthus nepalensis (Hook.) Sweet. Fabaceæ.

"A shrub, 6 to 10 feet high, possessing the habit of laburnum, native of the temperate Himalayas from Sikkim to Bhutan at altitudes ranging from 7,000 to 9,000 feet. The branches are downy, the stipules are small, connate, and amplexicaul. The leaflets are glabrescent, lanceolate, 2 to 4 inches in length, and narrowed at both ends. The flowers, which range from 12 to 20 in number, occur in subdense racemes." (*Hooker, Flora of British India, vol. 2, p. 62.*)

"A shrub or low tree with very pithy young shoots, naturally 8 to 12 feet high, but growing taller against walls, where it is generally placed in England. At Kew it is deciduous, but in milder climates it retains more or less foliage during the winter. Leaves alternate, consisting of three lanceolate, stalkless leaflets, 3 to 6 inches long, about one-third as wide, with a marginal nerve; smooth except when quite young, dark green above, glabrous beneath; the common leafstalk 1½ to 2 inches long. Racemes stiff, erect, 2 to 3 inches long, and as much broad, hairy, and set with hairy bracts. Flowers pea shaped, 1½ inches long, the stalk up to 1 inch long, and, like the brown calyx, very hairy; petals bright yellow. Pod 3 to 5 inches long, three-fourths inch wide.

"Native of the Himalayas, introduced to England in 1821. It thrives well against a wall, where it flowers in May, but is not permanently hardy in the open air at Kew. A shrub of exceptionally vigorous appearance, it is, nevertheless, not long lived. It is easily propagated by seeds, which it ripens in quantity, and owing to its dislike of root disturbance, should be grown in pots until planted in permanence. Its flowering sprays resemble those of the herbaceous genus Thermopsis. Wilson has

38991 to 39101—Continued.

recently introduced from China a Piptanthus almost or quite identical with *P. nepalensis*, which may, he thinks, prove hardier." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 194.*)

39044. PITTOSPORUM FLORIBUNDUM Wight and Arnott. Pittosporaceæ.

"A small tree found in the subtropical Himalayas from Sikkim to Garhwal, ascending to 5,000 feet in the hills. The medicinal virtues and the utilization of this plant have recently been brought to light. The bark is bitter and aromatic and is said by the natives to possess narcotic properties. The plant contains an aromatic resin, yellow in color, and having very tenacious properties. The wood is light colored, strong and tough, but of small size." (*Watt, Dictionary of the Economic Products of India.*)

39045. PLEUROSPERMUM APIOLENS C. B. Clarke. Apiaceæ.

Distribution.—A low herb with pinnate leaves, belonging to the parsnip family and having an odor similar to that of celery, found in the interior valleys of the Sikkim Himalayas in northern India at an altitude of 11,000 to 14,000 feet.

39046. PLEUROSPERMUM BRUNONIS (DC.) Bentham. Apiaceæ.

Distribution.—A low herb with pinnate leaves found on the slopes of the Himalayas from Kashmir to Nepal in northern India at an altitude of 9,000 to 14,000 feet.

39047. PLEUROSPERMUM HOOKERI C. B. Clarke. Apiaceæ.

Distribution.—A low herb belonging to the parsnip family, found on the slopes of the Sikkim Himalayas in northern India at an altitude of 10,000 to 16,000 feet.

39048. POLYGONUM VACCINIFOLIUM Meissner. Polygonaceæ.

"This is apparently a common Himalayan plant which has proved sufficiently hardy to bear the open air of this climate [England]. It is a low-growing, neat plant, and by its numerous slender stems trailing along the ground and rooting at the joints it soon forms a spreading, compact patch. The leaves are quite concealed by the copious spikes of bright rose-colored flowers, which continue blooming from August to November uninterruptedly. It is well adapted for the front part of rock work, in situations where it will not be subject to drought in summer. This plant promises to become a great favorite in our gardens as a bedding-out plant, especially where autumn flowers are desired. (*Curtis's Botanical Magazine, pl. 4622.*)

39049. RHEUM ACUMINATUM Hook. f. and Thoms. (?) Polygonaceæ. **Rhubarb.**

"This is the common rhubarb of the Sikkim Himalayas and very closely resembles in most respects the well-known *Rheum emodi*. It inhabits rocky places, often amongst bushwood in the subalpine and alpine regions of the Himalayas of Sikkim and East Nepal, at elevations of 9,000 to 13,000 feet. The stems are pleasantly acid, and, though more dry and stringy than those of *R. emodi*, may be used for tarts. The root is spongy and but slightly, if at all, medicinal." (*Curtis's Botanical Magazine, pl. 4877.*)

38991 to 39101—Continued.

39050. Rheum nobile Hook. f. and Thoms. Polygonaceæ. **Rhubarb.**

"A handsome herbaceous plant, with a stem 3 to 4 feet high and as thick as the wrist at the base. It is found in the inner ranges of the Sikkim Himalayas at altitudes between 13,000 and 15,000 feet. The root resembles that of the medicinal rhubarb, but is spongy and inert. The acid stems are eaten both raw and boiled, and the dried leaves afford a substitute for tobacco." (*Watt, Dictionary of the Economic Products of India.*)

39051. Rhododendron anthopogon Don. Ericaceæ. **Rhododendron.**

"A small shrub, with very aromatic, strongly scented leaves, common at altitudes between 11,000 and 16,000 feet on the alpine Himalayas, from Kashmir to Bhutan, and distributed to central and northern Asia. The leaves of this plant are aromatic, and their smoke is considered by the natives to be useful in some diseases. They are supposed to contain stimulant properties and are collected and exported to the plains, where they are officinal. This is one of the species which is thought by the Bhutias to excite the headache and nausea which attends ascents to the high elevations of the eastern Himalayas." (*J. D. Hooker. In Watt, Dictionary of the Economic Products of India.*)

"An evergreen shrub, 2 feet or less high, of compact habit; young branchlets hairy and covered with brown scurf. Leaves oval or ovate, 1 to 1½ inches long, one-half to three-fourths inch wide, dark, rather glossy green above, covered with brown scales beneath; stalk one-fourth inch long. Flowers sulphur colored, one-half to three-fourths inch across, produced in a small terminal cluster, 1 to 1½ inches wide. Corolla thin, almost transparent; tube hairy inside, expanding at the mouth into five wavy lobes; calyx lobes oblong, pale green, one-eighth inch long, fringed at the margin; stamens five (sometimes up to eight), very short, and included within the tube; flower stalk scaly, one-sixth inch or less in length. Flowers in April.

"Native of the high Himalayas from Cashmere eastward, up to 16,000 feet altitude, where it covers large areas; introduced in 1820. The whole plant has a strong, aromatic, slightly acrid odor, especially when crushed. It is an interesting little plant and one of the hardiest of Himalayan species, but not in any way showy." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 341.*)

39052. Rhododendron arboreum Smith. Ericaceæ. **Rhododendron.**

"A tree which often attains a height of 25 feet, common on the temperate Himalayas from the Indus to Bhutan, at altitudes between 5,000 and 10,000 feet. It is frequent on the Khasi Hills, between 4,000 and 6,000 feet, and occurs also on the hills of southern India and Ceylon, very abundant in Manipur, and on the Kareen Hills in Burma. The leaves of the young trees are poisonous and are used medicinally for headaches. The flowers have a sweet-sour taste and are said to make a good subacid jelly. They are, in some parts of the Himalayas, eaten by the natives, who become intoxicated if they consume a large quantity. The wood is soft, reddish white or reddish brown in color, and even grained, and apt to warp and shrink. The wood is chiefly used for fuel and charcoal, but it is also sometimes employed for building and for making dishes." (*Watt, Dictionary of the Economic Products of India.*)

38991 to 39101—Continued.

"A small evergreen tree ultimately 30 to 40 feet high, with a thick, sturdy trunk, the branches forming a head as wide as the tree is high, and reaching to the ground. Leaves narrowly oblong, tapering at both ends, 4 to 7 inches long, 1 to 2 inches wide, smooth above, covered beneath with a coat of silvery scales; stalk one-half to 1 inch long. Flowers blood red, borne in a compact hemispherical head, 4 to 5 inches through, sitting close on the terminal whorl of leaves. Corolla bell shaped, 1½ to 2 inches across; stamens 10; calyx very small; flower stalk downy.

"Native of the outer Himalayas, where it is widely spread; introduced in 1817. This species is one of the most variable of all rhododendrons, but the form just described, with crimson flowers and silvery undersurface of the leaves, may be taken as the type." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 342.*)

39053. RHODODENDRON ARBOREUM CAMPBELLIAE (Hook. f.) Vilmorin and Bois. Ericaceæ. **Rhododendron.**

"Flowers purplish rose; leaf reddish beneath." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 342.*)

39054. RHODODENDRON ARBOREUM Smith. Ericaceæ. **Rhododendron.**

See S. P. I. No. 39052 for description.

39055. RHODODENDRON BARBATUM Wallich. Ericaceæ. **Rhododendron.**

"A tree met with in the temperate Himalayas from Kumaon to Bhutan, at altitudes between 8,000 and 12,000 feet. The wood is pinkish red in color and shining and of slow growth. It weighs about 39 pounds to the cubic foot." (*Watt, Dictionary of the Economic Products of India.*)

"An evergreen shrub or small tree, the bark peeling from the branches and leaving them blue-gray and smooth; winter buds viscid; branches yellowish, sometimes smooth, sometimes bristly. Leaves in a terminal cluster, oblong, heart shaped at the base, terminated by a short, fine point, 4 to 9 inches long, 1 to 3 inches wide, dark dull green and smooth above, pale and usually smooth beneath; stalk one-half to 1 inch long, conspicuously bristly on the upper side and at the base of the midrib. Flowers densely packed in a hemispherical truss about 4 inches wide, blood red. Corolla bell shaped, 1½ inches across, five lobed; stamens 10; calyx with five smooth, ovate lobes, one-fourth inch long.

"Native of the Himalayas up to 12,000 feet, introduced about 1849. This rhododendron is hardy in a sheltered spot at Kew, where it flowers in April. It is somewhat gaunt of habit, but worth growing for its marvelous richness of color. It is, of course, much finer in Cornwall and similar places. There is some variation in the bristliness of the stems and leaves. In one form the young wood is furnished with bristles, and the leafstalk is bristly all round; bristles up to one-half inch long." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 344–345.*)

39056. RHODODENDRON CAMELLIAEFLORUM Hook. f. Ericaceæ. **Rhododendron.**

"This rhododendron is a native of the Nepal and Sikkim Himalayas at elevations of 9,000 to 12,000 feet. It usually grows on the limbs of lofty trees, where its branches hang down and are several feet in length. In looser forests, where light and air are better distributed, it is found

38991 to 39101—Continued.

growing on the ground and rocks. The stems are 2 to 6 feet in length and are as thick as a goose quill. The leaves are 2 to 3 inches in length, spreading, very thick and coriaceous, deep green above, and very stout. The flowers are 1½ inches in diameter, white, and of a very thick texture." (*Curtis's Botanical Magazine, pl. 4932.*)

39057. RHODODENDRON CAMPANULATUM Don. Ericaceæ.
Rhododendron.

"This is a large shrub found in the inner Himalayas from Kashmir to Bhutan, at altitudes between 9,000 and 14,000 feet. It occurs also on the outer ranges of the Chor and Kedarkanta and is very abundant in Sikkim. The leaves of this species are exported to the plains, where they are ground up with tobacco and used as snuff, which is said to be useful in colds and hemicrania. The wood is light pinkish in color and moderately hard." (*Watt, Dictionary of the Economic Products of India.*)

"An evergreen shrub of stiff, spreading habit, 6 to 12 feet high, more in diameter; bark peeling; young shoots smooth. Leaves oval, 3 to 5½ inches long, 1½ to 2½ inches wide; abruptly tapering at the apex, tapering, rounded, or slightly heart shaped at the base, smooth above, densely covered beneath with a red-brown felt; stalk one-half to 1 inch long, often reddish. Flowers rosy purple of numerous shades, 2 inches across, produced during April in rather loose clusters about 4 inches wide. Corolla broadly bell shaped, with 5 notched lobes, the upper ones dark purple spotted; calyx downy, small and scarcely lobed; stamens 10, smooth or sometimes downy towards the base; flower stalk about 1 inch long.

"Native of the interior Himalayas of Sikkim and Nepal; introduced in 1825. This is perhaps the hardiest and most satisfactory of Himalayan rhododendrons near London, where it flowers regularly and profusely. In very cold weather (and it withstands uninjured 32 degrees of frost) its leaves roll themselves up tightly, giving the shrub a very curious aspect. It is very variable in the color of the flowers, which are sometimes quite pale, sometimes of a bright bluish purple, sometimes lilac; in the amount of felt at the back of the leaf; and in the color of the leaf scales that accompany the young bursting shoots, which are sometimes rich crimson, sometimes green." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 347.*)

39058. RHODODENDRON CAMPYLOCARPUM Hook. f. Ericaceæ.
Rhododendron.

"This is a small bush 6 feet high, roundish in form, of a bright, cheerful green hue, which, when loaded with its inflorescences of surpassing delicacy and grace, claims precedence over its more gaudy congeners and has been regarded by some as the most charming of the Sikkim rhododendrons. The plant exhales a grateful honeyed flavor from its lovely bells, and a resinous sweet odor from the stipitate glands of the petiole, pedicels, calyx, and capsules." (*Curtis's Botanical Magazine, pl. 4968.*)

"An evergreen shrub, 4 to 8 feet high, of neat, bushy habit. Leaves 2½ to 4 inches long, half as wide, heart shaped or rounded at the base, the apex with a short, abrupt tip, upper surface dark glossy green, lower one vividly blue-white; stalk one-half to 1 inch long, thickly set with

38991 to 39101—Continued.

stalked glands when young. Flowers pale yellow, slightly fragrant, in loose terminal clusters of 6 to 8; corolla bell shaped, 2½ to 3 inches across; lobes five, rounded; calyx scarcely one-quarter inch across, the five shallow lobes edged with dark, stalked, viscid glands; flower stalk about 1 inch long, and, like the ovary and base of style, glandular; stamens 10, downy at the base.

"Native of the Sikkim Himalayas at 12,000 feet. Although not one of the hardiest species, it has lived outside in the sheltered Rhododendron Dell at Kew for over 20 years with no other protection than the situation affords. It is at present the best of the larger species with yellow flowers (apart from Azalea) in cultivation, although the color, in some forms especially, is too pale and sulphurlike to give hopes of founding upon it a race of golden-flowered kinds. Perhaps the finest example of this rhododendron is in the Earl of Morney's garden at Whiteway, in Devonshire, which, some years ago, was 8 feet high." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 348.*)

39059. Rhododendron ciliatum Hook. f. Ericaceæ. **Rhododendron.**

"This species grows in the Sikkim Himalayas in the inner ranges only, in wet, rocky places, rarely in woods, at elevations ranging from 9,000 to 10,000 feet. It is a small, very rigid shrub, growing in clumps 2 feet high, generally in moist, rocky places. The odor of this plant is faintly resinous and pleasant, and resembles in some respects *R. barbatum*, but it is widely different in stature and habit." (*J. D. Hooker, The Rhododendrons of Sikkim-Himalaya, pl. 24.*)

"An evergreen shrub of stiff, wide-spreading habit, rarely more than 3 to 4 feet high out of doors near London, but 9 feet high and twice as much in diameter in Cornwall; young branchlets covered with bristly hairs. Leaves oval or obovate, tapering sometimes equally to both ends, sometimes more gradually toward the base, 2 to 4 inches long, three-fourths to 1½ inches wide, bristly on the upper surface and on the margins, scaly beneath; stalk bristly, one-fourth to one-third inch long. Flowers beautiful rosy red in bud, pale pink on opening, becoming almost white with age, 2½ inches across, produced three to five in a cluster during March and April; corolla widely bell shaped, with broad notched lobes; calyx lobes rounded ovate, bristly on the margins, stamens 10, hairy at the base, flower stalks one-half inch long, bristly.

"Native of Sikkim, introduced to Kew in 1850. It is hardy there, but really needs milder conditions to bring out its best qualities. In Mr. Shilson's garden at Tremough, near Falmouth, some years ago I saw a specimen of the larger dimensions given above. Near London it needs a very sheltered position, and in such a spot, although it grows slowly, it frequently gives a very charming display in April if the weather be kind." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 350.*)

39060. Rhododendron boylei Hook. f. Ericaceæ. **Rhododendron.**
(*Rhododendron cinnabarinum* Hook. f.)

"This is a shrub which attains a height of 4 to 8 feet, met with on the eastern Himalayas at elevations of 10,000 to 12,000 feet. The leaves are universally considered poisonous to cattle and goats. It is employed as fuel, but the smoke causes the eyes to inflame and the face to swell." (*Watt, Dictionary of the Economic Products of India.*)

38991 to 39101—Continued.

"An evergreen shrub, 6 to 10 feet high, somewhat thin and sparse of habit, the branches long and slender, scaly when young. Leaves 2 to 4 inches long, three-fourths to 1¼ inches broad, oval, tapering about equally to each end, smooth, and of a grayish green metallic luster above, scaly beneath, and varying in color from glaucous green to reddish brown; stalk one-third inch long. Flowers funnel shaped and, like those of Lapageria, 1½ to 2 inches long, very variable in color, ordinarily of a dull cinnabar red, produced during May and June, from five to eight in terminal heads. In other forms the corolla is orange red outside, yellowish within, sometimes greenish. Calyx with four short, broadish lobes and one longer narrow one, or sometimes with all five nearly equal, scaly. Stamens 10, scarcely so long as the corolla, hairy at the base; flower stalk one-third inch long, scaly.

"Native of Sikkim and Bhutan; introduced in 1849. This distinct and striking species is chiefly remarkable for the variability of the color of its flowers and the under surface of its leaves." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 351.*)

39061. Rhododendron dalhousiae Hook. f. Ericaceæ. **Rhododendron.**

"Of all the Sikkim rhododendrons this is perhaps the one which has excited the greatest interest, partly from the great size and beauty of the fragrant flowers and partly from the peculiar place of growth, generally in its native localities among moss, with ferns and Aroideæ, and upon the limbs of large trees. This rhododendron is a native of East Nepal, Sikkim, and Bhutan at elevations of 6,000 to 9,000 feet. It is a straggling bush, 6 to 8 feet high; the stems are clothed with a reddish papery bark, and the branches are straggling in distant whorls, each branch bearing its leaves and flowers only at the extremity, three to five in number, very large and fragrant." (*Curtis's Botanical Magazine, pl. 4718.*)

39062. Rhododendron falconeri Hook. f. Ericaceæ. **Rhododendron.**

"A moderate-sized tree or frequently a gregarious shrub, abundant in the eastern Himalayas from east Nepal to Bhutan at altitudes between 9,000 and 13,000 feet. The wood is of a reddish white color and shining, with a satiny lustre, takes a beautiful polish, is hard, and does not warp. It is easily worked and is not apt to split. It is admirably adapted for use in the parched and arid climate of Tibet, and the Bhutias make from it cups and spoons and many other useful domestic articles." (*Watt, Dictionary of the Economic Products of India.*)

"A large shrub or a small tree, ultimately over 30 feet high, with stiff, very thick, somewhat sparse branches, woolly when young. Leaves oval or oblong, 6 to 12 inches long, 2½ to 6 inches wide (sometimes larger); very stout, thick, and strongly veined, the upper surface dark green, curiously wrinkled, but otherwise smooth, the lower surface covered with a dense, rust-colored felt; stalk 1 to 2 inches long. Flowers about 2 inches across, creamy white, shaded with lilac and marked with a conspicuous dark-purple blotch at the base, fragrant, produced in spring in large terminal clusters 6 to 9 inches across, the flowers tightly packed. Corolla bell shaped, 2 inches long, its lobes varying in number from eight to ten;

38991 to 39101—Continued.

calyx scarcely observable; stamens 12 to 16, shorter than the corolla; style about as long as the corolla, stout, and surmounted by the large knoblike stigma; flower stalk downy, 1 inch long.

"Native of the Himalayas; introduced about 1850. This is one of the noblest of all the genus, but not very hardy. After many trials it has been given up at Kew as hopeless, the plants lingering for years, but always in a miserable condition. Yet in the Duchess garden at Belvoir Castle there is a specimen about 16 feet high now in perfect health, although it suffered in the great frost of February, 1895. But this garden is elevated and is in the form of an amphitheater facing south, a very favorable position compared with low-lying, flat country. In the south coast gardens in Ireland and in Cornwall it is perfectly at home." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 354.*)

39063. RHODODENDRON FULGENS Hook. f. Ericaceæ. **Rhododendron.**

"A small tree or large shrub of the Nepal and Sikkim Himalayas, found at altitudes of 10,000 to 14,000 feet. The wood is of a gray color, darker in the center, and moderately hard and even grained." (*Watt, Dictionary of the Economic Products of India.*)

"An evergreen shrub, 6 to 12 feet high, with stiff branches and peeling bark. Leaves oval, 3 to 4 inches long, 1½ to 2 inches wide, rounded at the end except for a short, abrupt tip, somewhat heart shaped at the base, covered beneath with a thick, reddish brown felt. Flowers blood red, 1 to 1½ inches across, densely packed in hemispherical trusses 3½ inches wide. Corolla bell shaped, with five shallow, notched lobes; calyx very small, shallowly lobed; stamens 10, much shorter than the corolla, not downy.

"Native of Nepal and Sikkim at 10,000 to 14,000 feet; introduced about 1849. This species is very similar to *R. campanulatum* in foliage, but is not quite so hardy nor so free in growth. Its flowers are the richest red of any hardy species except *R. thomsoni* (which is of quite a different type) and *R. barbatum*. They appear during March and April and provide a feast of color unequalled in cold districts so early in the year. A suitable spot for it is some sheltered outskirt of woodland, especially where the flowers may be protected from early morning sunlight. At Kew the various titmice are very fond of pecking a hole through the base of the corolla, presumably to get at the honey. An ornamental feature of the plant is the crimson bracts that accompany the young growth in the spring." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 357–358.*)

39064. RHODODENDRON GRANDE Wight. Ericaceæ. **Rhododendron.**

"A tree frequent in the Sikkim and Bhutan Himalayas at altitudes of 7,000 to 11,000 feet. The wood is of a yellowish color with a darker heartwood, shining, soft, and even grained." (*Watt, Dictionary of the Economic Products of India.*)

39065. RHODODENDRON LANATUM Hook. f. Ericaceæ. **Rhododendron.**

"This species of rhododendron is found on the rocky spurs of the humid mountains and gullies of the Sikkim Himalayas at elevations of 10,000 to 12,000 feet. It is a large shrub or small tree, with the trunk 6 inches in diameter at the stoutest part, irregularly and repeatedly branching. The branches are much gnarled and bare of leaves, and are

38991 to 39101—Continued.

covered with a dark-colored rugged bark, very different from the prevailing beautiful papery clothing of the genus. The flowers are a pale sulphur color." (*J. D. Hooker, Rhododendrons of Sikkim-Himalaya.*)

39066. Rhododendron lepidotum Wallich. Ericaceæ. **Rhododendron.**

"A shrub found on the temperate and alpine Himalayas, from Kashmir to Bhutan at altitudes between 8,000 and 15,000 feet. The medicinal properties of this plant are similar to those of *R. anthopogon* [S. P. I. No. 39051]." (*Watt, Dictionary of the Economic Products of India.*)

"A low, evergreen, sometimes nearly deciduous shrub, usually 1 to 2 feet high in this country, but said to be 4 feet high in the Himalayas; young wood, leaves, leafstalk and flower stalks dotted thickly with minute scales. Leaves oblong, 1 to 1½ inches long, about one-half inch wide, only hairy on the margins when young. Flowers rosy crimson, produced singly or a few together during June, each about 1 inch across, flat and saucer shaped, and borne on a stalk 1 to 1½ inches long; corolla tube very short, lobes rounded. Stamens about 10, hairy toward the base, not protruded; calyx lobes one-eighth inch long, rounded.

"Native of the lofty interior ranges of the Nepal and Sikkim Himalayas, up to 16,000 feet altitude, and in Yunnan. It is hardy at Kew, and one of the most distinct and interesting of dwarf rhododendrons. Sir Joseph Hooker mentions varieties with golden-yellow flowers and greenish yellow flowers, which do not appear to be in cultivation. Seeds are frequently borne." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 366.*)

39067. Rhododendron setosum Don. Ericaceæ. **Rhododendron.**

"A small and elegant shrub found in Sikkim and Nepal at altitudes between 13,000 and 16,000 feet. The natives attribute the oppression and headaches attending the crossing of the loftiest passes to the strongly resinous odour of this rhododendron. A useful volatile oil of no less marked character than that of the American Gaultheria might probably be obtained from the foliage by distillation." (*Watt, Dictionary of the Economic Products of India.*)

"A dwarf evergreen shrub, 6 to 12 inches high, of close, bushy habit; young shoots densely clothed with pale bristles and minute down. Leaves oblong, tapered at the base, rounded at the apex, three-eighths to five-eighths inch long, bristly on the margins, very scaly above, rather glaucous and less scaly beneath. Flowers 3 to 8 in a terminal cluster; corolla 1 inch across, reddish purple, lobed to two-thirds of its depth; calyx comparatively large, scaly and downy, with five ovate lobes one-fourth inch long; stamens hairy at the base; flower stalk scaly, slender, one-fourth inch long.

"Native of the Himalayas up to 16,000 feet. The plant is very distinct in its bristly character and strong resinous odor. Introduced in 1825, this curious alpine species is now very rare. It thrives well in the Edinburgh Botanic Garden, but in the South misses its winter covering of snow and is often excited into growth too early." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 378–379.*)

38991 to 39101—Continued.

39068. Rhododendron wightii Hook. f. Ericaceæ. **Rhododendron.**

"This species has very handsome trusses of large, pale yellow flowers. It is very rare in collections, although it has been in cultivation in this country for many years. It is found growing abundantly in woody valleys in the Himalayas and on the spurs of all the mountains at an elevation of 12,000 to 14,000 feet." (*Gardener's Chronicle, May 31, 1913.*)

"An evergreen shrub of bushy habit, and up to 10 feet high, with very leathery, dark-green leaves, 6 to 8 inches, sometimes more, long, 2½ to 3 inches wide, covered beneath with a reddish brown felt. Flowers bell shaped, pale yellow, blotched on the upper side with crimson, about 1½ inches across, the five lobes shallow, notched, and reflexed. Calyx lobes five, shallow, broadly triangular, and, like the flower stalk, which is 1½ inches long, hairy; stamens 10, shorter than the corolla, downy at the base; ovary clothed with a white felt; style smooth, much longer than the stamens.

"Native of the Himalayas up to 14,000 feet; very rare in cultivation, but existing in the open ground in Miss A. Mangles's collection at Littleworth, near Farnham, also at Kew (under glass). It is a rhododendron of great beauty and distinctness in its pale yellow flowers, which are borne as many as 20 together in rather loose heads." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 385–386.*)

39069. Rubus sp. Rosaceæ.

39070. Salix tetrasperma Roxburgh. Salicaceæ. **Willow.**

"This species is found in the mountains of India growing at altitudes of 2,000 to 7,000 feet. This thick-stemmed willow is worthy of a place on banks of watercourses. The twigs can be worked into baskets, the wood serves for gunpowder, and the foliage for cattle fodder." (*Mueller, Select Extra-Tropical Plants, p. 488.*)

39071. Salix sp. Salicaceæ. **Willow.**

39072. Saussurea deltoidea (DC.) C. B. Clarke. Asteraceæ.

Distribution.—A composite growing 8 feet tall with panicles of large, purple flowers, found in the central and eastern Himalayas from Garwhal to Bhutan, in northern India, at an altitude of 6,000 to 11,000 feet.

39073. Saussurea sp. Asteraceæ.

39074. Saxifraga purpurascens Hook. f. and Thoms. Saxifragaceæ. **Saxifrage.**

"This beautiful and hardy species comes from the temperate regions of the Sikkim Himalayas, where it was discovered growing in wet places at an elevation of 10,000 to 14,000 feet. Though closely allied to the Himalayan *S. ligulata* and the Siberian *S. crassifolia*, it is extremely different from and far more beautiful than any of these species. Nothing, indeed, can exceed the bright glossy green of the leaves, which are elegantly margined with red, or the deep, bright, vinous red-purple of its scape and inflorescence." (*Curtis's Botanical Magazine, pl. 5066.*)

39075. Sedum asiaticum (Don) Sprengel. Crassulaceæ.

"This species of Sedum, which is a native of the Himalayas, is cultivated in Europe and possibly in America. It reaches a height of 6 to 12

38991 to 39101—Continued.

inches, but seems to suffer from the wetness of an ordinary border in winter and should probably be wintered under glass. The leaves are opposite, linear, coarsely and irregularly toothed. The flowers, which occur in compact, globose cymes, are yellow in color and make their appearance in summer. In India it is said to have red flowers." (*L. H. Bailey, Cyclopedia of American Horticulture.*)

39076. SEDUM ROSEUM (L.) Scopoli. Crassulaceæ.

"This Sedum is a neat-growing plant, suitable for rockeries or the front rows of borders. It reaches a height of 8 to 10 inches, the leaves are scattered and oblong, the flowers are greenish purple, in a terminal flat-topped cyme 1 inch across. This species of Sedum may be found growing in Europe, North America, and the Himalayas." (*L. H. Bailey, Cyclopedia of American Horticulture.*)

39077. SELINUM TENUIFOLIUM Wallich. Apiaceæ.

"A hardy perennial herb with finely cut, fernlike foliage, and a stem about 8 feet high, branched, with numerous umbels of white flowers. The ultimate segments of leaves are narrowly lanceolate and acute. This plant was offered as a novelty in America in 1899 and later recommended as a foliage plant for single lawn specimens." (*L. H. Bailey, Cyclopedia of American Horticulture.*)

39078. SENECIO UNCINELLUS DC. Asteraceæ.
(*Senecio densiflorus* Wall.)

Distribution.—A yellow-flowered shrubby sneezewort with white-woolly leaves, found on the lower slopes of the central and western Himalayas and on the Khasi Hills in India.

39079. SENECIO RAPHANIFOLIUS Wall. Asteraceæ.
(*Senecio densiflorus* Wall.)

Distribution.—A yellow-flowered herbaceous perennial of the aster family with lyrate-pinnatifid leaves and red pappus on the fruiting heads, found on the slopes of the central and eastern Himalayas in northern India at an altitude of 10,000 to 14,000 feet.

39080. SENECIO SCANDENS Buch.-Ham. Asteraceæ.

A woody climbing plant reaching a height of several yards, with slender, somewhat hairy branches. The leaves are rather small, grayish green, short stemmed, lance-elliptic and acute, with small triangular teeth on the margins, and are either simple or have 2 or 3 leaflets at the base. The yellow flower heads, about three-fourths of an inch wide, occur in lax terminal corymbs. The home of this species is in the Himalayas and in China. It should not be confused with the commonly cultivated *S. scandens* Hort., which is *S. mikanioides* Otto. (Adapted from *Bulletin of Miscellaneous Information, Royal Gardens, Kew, Appendix III, 1910, p. 82.*)

39081. SENECIO sp. Asteraceæ.

39082. SORBUS INSIGNIS (Hook. f.) Hedl. Malaceæ.
(*Pyrus insignis* Hook. f.)

Distribution.—A small tree, one of the most beautiful of the whole genus, found on the slopes of the Sikkim Himalayas at an altitude of 8,000 to 11,000 feet.

38991 to 39101—Continued.

39083. Poupartia axillaris (Roxb.) King and Prain. Anacardiaceæ.
(*Poupartia fordii* Hemsl.)

39084. Stephania rotunda Lour. Menispermaceæ.

Distribution.—A climbing shrub with peltate leaves and umbels of small berries, found on the tropical and temperate slopes of the Himalayas in India, and in Siam and Cochin China.

"*Cu-mot-tu-nhien.* Twining shrubby stem, very long, unarmed, glabrous; leaves peltate, trigonal, rounded, pointed, glabrous, alternate, petioled; flowers diœcious, in compound lateral umbels; male flowers, calyx with six subacute spreading sepals, corolla none; the andrœcium is represented at maturity by a cylindrical column at the top of which is found a circular disk, bordered by an anther, unique in appearance, opening by a marginal, horizontal, and continuous fissure; female flower, calyx with one lateral sepal, corolla with two lateral petals; ovary unilocular, 1-ovuled; berry small, oval, monospermous. The large, rounded, wrinkled, tuberous root of rusty color, with filiform rootlets, is extremely bitter and tonic." (*Lanessan, Les Plantes Utiles des Colonies Françaises.*)

39085. Thalictrum foliolosum DC. Ranunculaceæ.

"This is an erect rigid shrub found in the temperate Himalayas at altitudes between 5,000 and 8,000 feet and in the Khasi Hills at 4,000 and 6,000 feet. The root of this plant is used in the preparation of various medicines for ague and as a tonic in convalescence from acute diseases. The root of this species contains a large quantity of berberine that is so combined as to be readily soluble in water." (*Watt, Dictionary of the Economic Products of India.*)

39086. Trachydium obtusiusculum (DC.) C. B. Clarke. Apiaceæ.

Distribution.—An herbaceous perennial related to the parsnip, growing a foot high on the Sikkim Himalayas in northern India, at an elevation of 11,000 to 13,000 feet.

39087 to 39092. (Undetermined.)

39093. Oxyspora paniculata (Don) DC.

39094. Hymenodictyon excelsum (Roxb.) Wallich.

39095. Ventilago sp.

39096. Morus sp.

39097 to 39100. (Undetermined.)

39101. Stachys sericea Wallich. Menthaceæ.

An erect herb, 2 to 4 feet in height, with usually simple stems; oblong, sharply toothed or crenate leaves; and purple-spotted pink flowers crowded in axillary whorls, forming more or less interrupted, long, terminal spikes. The plant is covered with long, silky hairs.

Distribution.—Western Asia to northern India.

39102 to 39141.

From Darjiling, India. Presented by Mr. G. N. Cave, Lloyd Botanic Gardens, through Mr. Wilson Popenoe, Agricultural Explorer for the Department of Agriculture.

39102. AESCULUS ASSAMICUS Griffith. Æsculaceæ.
(*Aesculus punduana* Wall.)

"This is a moderate-sized deciduous tree, found in northern Bengal, in the Khasi Hills, Assam, and Burma, ascending to 4,000 feet. The leaflets are five to seven, shortly petioled. Panicles narrowly lanceolate, nearly equaling the leaves, lower pedicels longer. Petals white and yellow. The wood is white, soft, and close grained, but very rarely used. It weighs about 36 pounds per cubic foot." (*Watt, Dictionary of the Economic Products of India.*)

39103. ALBIZZIA ODORATISSIMA (L. f.) Benth. Mimosaceæ.

For previous introduction and description, see S. P. I. No. 38996.

39104. ALBIZZIA CHINENSIS (Osbeck) Merrill. Mimosaceæ.
(*Albizzia stipulata* Boiv.)

"A large deciduous, fast-growing tree, met with in the subalpine tract from the Indus eastward, ascending to 4,000 feet in Oudh, Bengal, Burma, and South India. This tree is attracting considerable attention in Assam. It has been found that tea flourishes better under it than when exposed to the sun. The most favorable explanation of this fact is that the leaves manure the soil; the roots, which do not penetrate deep, tend to open up the soil, while the shade is not so severe as to injure the tea, the leaves closing at night and during the early morning. The gum which flows copiously from the stem is used by the Nepalese for sizing their 'Daphne' paper. The sapwood of this tree is large and white, while the heartwood is brown and generally not durable. The wood is used in the manufacture of cart wheels, wooden bells, and in Bengal it has been tried for tea boxes, for which purposes it will probably be well suited." (*Watt, Dictionary of the Economic Products of India.*)

39105. BERBERIS NEPALENSIS (DC.) Spreng. Berberidaceæ. **Barberry.**

"A shrub or small tree with large or small leaves, common on the outer Himalayas, from the Ravi eastward to the Khasi and Naga Hills, at altitudes above 5,000 feet. A yellow dye is extracted from this plant by the Bhutias and Nagas, but used only to a small extent. The wood, which has a handsome yellow color, is hard and might be used for inlaying." (*Watt, Dictionary of the Economic Products of India.*)

"An evergreen shrub, sometimes 20 feet high in the Himalayas, but rarely more than one-third as high in Britain. Leaves with as many as 25 leaflets, usually about 15. Leaflets dark, glossy green, obliquely ovate, lanceolate, 1½ to 4½ inches long, the lowest pair broader and shorter than the others, spine-toothed, of firm leathery texture. Flowers yellow, borne in slender racemes 6 to 12 inches long. Berries oval or nearly globose, about one-fourth inch in diameter, covered with blue-white bloom.

"Native of the Himalayas, this barberry is too tender to thrive well except in the milder parts of Britain or in exceptionally sheltered spots. At Kew it lives but a short time out of doors, although it has succeeded well in a sheltered spot in the gardens of Belvoir Castle for a good many

39102 to 39141—Continued.

years. It has by some authorities been united with *B. japonica*, but is sufficiently distinguished by its more numerous, smaller, even-sized, and more tapering leaflets and the brilliantly polished upper surface. For the milder counties it is a most desirable shrub, commencing to flower as early as October, but at its best in March and April. Several forms of it exist, some of which approach *B. japonica*." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 245.*)

39106. CORYLUS FEROX Wallich. Betulaceæ.

"This is a small tree, native of Nepal and Sikkim, found growing at altitudes ranging from 8,000 to 10,000 feet. The fruit, which has an edible kernel, is covered with a prickly cup. The wood is pinkish white in color, moderately hard and even grained." (*Watt, Dictionary of the Economic Products of India.*)

39107. CRACCA CANDIDA (DC.) Kuntze. Fabaceæ.
(*Tephrosia candida* DC.)

This species, which is a close relation of *Tephrosia purpurea*, is a shrub which attains a height of about 10 or 11 feet. It makes a great deal of soft growth and covers the ground well. This shrub has been very well reported on in the east and in various parts of the West Indies. A characteristic feature is its long tap root. (Adapted from *Bulletin of the Trinidad Agricultural Society, August 12, 1912*, and *Hooker, Flora of British India.*)

39108. DICENTRA THALICTRIFOLIA (Wall.) Hook. f. and Thoms. Papaveraceæ.

"This species of Dicentra is a native of the temperate Himalayas and may be found growing from Nepal to Bhutan at elevations of from 4,000 to 8,000 feet and in the Khasi Hills at 5,000 feet. This plant is very similar to *D. scandens* and probably not specifically distinct, but the capsule is broader, three-fourths of an inch long, thick, fleshy, and very tardily dehiscent. The style is stouter and the seeds finely granulate near the hilum and coarsely so on the back. It is common in Sikkim, and the pods are drier and most dehiscent at higher elevations." (*Hooker, Flora of British India, vol. 1, p. 121.*)

39109. DILLENIA PENTAGYNA Roxb. Dilleniaceæ.

"A deciduous tree of Oudh, Bengal, Assam, Central, South and Western India, and Burma. In the younger trees the leaves are sometimes as much as 2 feet in length and the flowers, buds, and fruit, when green, are eaten by the natives. The tree flowers in March and April and later produces a berry which is said to have an agreeable acid flavor resembling that of *Grewia asiatica*. The wood is tough, moderately hard, and of a reddish gray color. The wood is used in the construction of ships, rice mills, and in the manufacture of charcoal, which is of very good quality. The leaves of this tree are sold in the bazaar at Poona as a substratum for thatching." (*Watt, Dictionary of the Economic Products of India.*)

39110. ELAEOCARPUS SIKKIMENSIS Mast. Elaeocarpaceæ.

"A tree native of the eastern Himalayas and found growing at Sikkim and Assam at elevations of about 5,000 feet. The leaves are glabrous, 8 inches long and 3 inches wide. The racemes are erect, half the length of the leaves, and the pedicels are thinly pilose. The flowers are about

39102 to 39141—Continued.

one-half inch in diameter, and the petals are cuneate and slightly silky at the back." (*Hooker, Flora of British India, vol. 1, p. 402.*)

39111. ERIOBOTRYA PETIOLATA Hook. f. Malaceæ.

"This plant is a native of the eastern Himalayas and is found growing in Sikkim and Bhutan at elevations of 5,000 to 9,000 feet. The leaves are firmly coriaceous and vary from 6 to 9 inches in length and 3 to 3½ inches in width. The panicles are from 3 to 6 inches in length and broad, branched from the base, very spreading and clothed with a rusty tomentum, as are the very young leaves on both surfaces. The flowers are one-half inch in diameter, shortly pediceled and not crowded." (*Hooker, Flora of British India, vol. 2, p. 370.*)

May possibly have some value as a stock for the loquat.

39112. ERYTHRINA ARBORESCENS Roxb. Fabaceæ.

"This is a small, moderate-sized tree, found in the outer Himalayas from the Gangés to Bhutan up to 7,000 feet in the Khasi Hills. This species is chiefly remarkable for brilliantly colored flowers. The wood is soft and slightly spongy." (*Watt, Dictionary of the Economic Products of India.*)

39113. FICUS BENGALENSIS Linn. Moraceæ. Banyan tree.

"A large tree found in the subalpine tract and lower slopes of the Deccan and is so common in Mysore that it may be said to be characteristic of the arboreal vegetation in many parts of that province. This tree attains a height of 70 to 100 feet and sends down roots from its branches, thus indefinitely expanding its horizontal growth. This tree yields an inferior rubber, and lac is also collected from it. A coarse rope is prepared from the bark and the aerial roots. Paper is also reported to have formerly been prepared in Assam from the bark and to a small extent is still so prepared in Madras. The milky juice is externally applied for pain and bruises and as an anodyne application to the soles of the feet when cracked or inflamed. It is also applied to the teeth and gums as a remedy for toothache. The wood is of a grayish color, is moderately hard, and as it is durable under water it is used in the manufacture of well curbs. It is sometimes used for boxes and door panels." (*Watt, Dictionary of the Economic Products of India.*)

39114. FICUS HOOKERI Miquel. Moraceæ.

A tree occasionally found in the Sikkim Himalayas and the Khasi Hills at altitudes ranging from 1,000 to 6,000 feet. The leaves are thinly coriaceous, long petioled, broadly elliptic or subobovate, with a short, broad, obtuse, entire cusp. The base is rounded or slightly narrowed, 3-nerved, receptacles in axillary pairs. The large basal bracts are united in an entire cartilaginous cup which envelops the lower third of the ripe receptacle. (Adapted from *Hooker, Flora of British India, vol. 5, p. 505*)

39115. FRAXINUS FLORIBUNDA Wallich. Oleaceæ. Ash.

"This is a large deciduous tree found growing in the Himalayas from the Indus to Sikkim, between 5,000 and 8,500 feet. A concrete, saccharine exudation called manna is obtained from the stem of this tree and is employed as a substitute for the officinal manna. The sugar contained in this exudation, called mannite, differs from cane and grape sugar in not being readily fermentable, though under certain conditions it does ferment and

102 to 39141—Continued.

yields a quantity of alcohol varying in strength from 13 to 33 per cent. Like the officinal manna, this is used for its sweetening and slightly laxative properties. The wood is white with a reddish tinge, soft to moderately hard in structure, resembling in some respects the European ash. This tree is very valuable and is used in the manufacture of oars, jampan poles, ploughs, platters, spinning wheels, and for many other purposes." (*Watt, Dictionary of the Economic Products of India.*)

See S. P. I. No. 39014 for previous introduction and description.

39116. **Gynura nepalensis** DC. Asteraceæ.

"A tall, handsome species, native of the temperate Himalayas from Kumaon to Bhutan at altitudes ranging from 2,000 to 5,000 feet and in the Martaban Mountains near Maulmein at altitudes of 4,000 to 5,000 feet. The lower portion of the stem is as thick as the little finger, and the leaves are 3 to 7 inches in length, acuminate, usually irregular, coarsely toothed, and broadly pubescent on both surfaces." (*Hooker, Flora of British India, vol. 3, p. 337.*)

39117. **Hypericum oblongifolium** Choisy. Hypericaceæ.
(*Hypericum cernuum* Roxb.)

"A glabrous shrub, 3 to 6 feet in height, native of the western temperate Himalayas from Kumaon to Sikkim at altitudes ranging from 5,000 to 7,000 feet. The branches of this species are cylindrical in form, glaucous when young, and the leaves, which are minutely dotted, are sessile and range from 1 to 3 inches in length. The cymes are 3 to 5 flowered and terminal, while the flowers are 2 inches in diameter, at first white, then gradually turning to yellow." (*Hooker, Flora of British India, vol. 1, p. 253.*)

39118. **Hypericum patulum** Thunb. Hypericaceæ.

"This is a small, glabrous shrub found growing throughout the temperate Himalayas from Bhutan to Chamba and in the Khasi Hills. The scented seeds of this species are employed as an aromatic stimulant in Patna, to which place they are exported from Nepal." (*Watt, Dictionary of the Economic Products of India.*)

"A dwarf shrub in this country [England], but said to grow as high as 6 feet in Japan and the Himalayas. Leaves 1 to 2½ inches long, ovate, deep green above, glaucous beneath. Flowers 2 inches across, borne in a cyme at the end of the shoot; petals bright golden yellow, overlapping, roundish; sepals broadly ovate, one-third inch long. Stamens in five bundles.

"Introduced to Kew from Japan by Oldham in 1862; a native of China and the Himalayas. The type is not absolutely hardy, and almost always has its stems cut back to ground level during the winter. These spring up again the following season from 1 to 2 feet high, and flower from July to October. After a few years the shoots are apt to become more and more weakly and it becomes necessary to renew the stock from cuttings. The only species with which it can be confounded are *H. hookerianum*, from which it differs in the branchlets being two-edged, especially just beneath the flowers; *H. lysimachioides*, which has narrow, linear-lanceolate sepals; and *H. uralum*, with flowers half the size." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 639.*)

39102 to 39141—Continued.

39119. INDIGOFERA DOSUA Hamilton. Fabaceæ.

"This is a shrub of the temperate, central, and eastern Himalayas from Simla to Bhutan and Assam at altitudes ranging from 6,000 to 8,000 feet. The flowers of this *Indigofera* are said to be eaten in Kangra as a potherb. This species is prized as fodder for sheep and goats, and buffaloes are also said to be very fond of it." (*Watt, Dictionary of the Economic Products of India.*)

39120. JASMINUM HUMILE Linn. Oleaceæ. Jasmine.

"A small, erect, rigid shrub, native of the subtropical Himalayas from Kashmir to Nepal, at altitudes of 2,000 to 5,000 feet; found also in South India and Ceylon, from 2,000 to 6,000 feet. It is widely cultivated throughout the gardens in India. In the Kuram Valley a yellow dye is extracted from the roots, and it is curious that this fact should be unknown to the hill tribes in India, where the plant is equally abundant. A dyestuff, much used in Chittagong under the name of *juri* may, however, possibly be derived from this jasmine. Like many other jasmines, this species bears flowers which yield an aromatic essential oil used in native perfumery. The milky juice which exudes on an incision in the bark of this plant is alleged to have the power of destroying the unhealthy lining walls of chronic sinuses and fistulas." (*Watt, Dictionary of the Economic Products of India.*)

"It is a dwarf plant with nearly always ternate leaves and one to four flowers on a stalk. It was cultivated by Capt. Tradescant in 1656, but being rather tender and not so ornamental as either *revolutum* or *wallichianum*, has probably disappeared from cultivation. It used to be known as *Italian jasmine*." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 662.*)

39121. LAUROCERASUS ACUMINATA (Wall.) Roemer. Amygdalaceæ.
(*Prunus acuminata* Hook. f.) **Cherry.**

Distribution.—An evergreen cherry 30 to 40 feet high with drooping racemes of yellowish white flowers, found on the temperate slopes of the Himalayas from Nepal to Sikkim in northern India at an altitude of 5,000 to 7,000 feet.

39122. MALLOTUS NEPALENSIS Muell. Arg. Euphorbiaceæ.

"This is a small tree of the central and eastern part of the Himalayas from Nepal to Sikkim and may be found growing at altitudes ranging from 5,000 to 7,000 feet and in the Khasi Hills at from 4,000 to 5,000 feet. The wood is white and soft and makes growth moderately fast, five rings to the inch radius." (*Watt, Dictionary of the Economic Products of India.*)

39123. MEIBOMIA FLORIBUNDA (G. Don) Kuntze. Fabaceæ.
(*Desmodium floribundum* G. Don.)

Distribution.—A shrubby legume with trifoliate leaves and copious racemes of large pink flowers, found on the tropical and temperate slopes of the Himalayas up to an elevation of 7,000 feet and in the Khasi Hills in India.

39124. MEIBOMIA TILIAEFOLIA (G. Don) Kuntze. Fabaceæ.
(*Desmodium tiliaefolium* G. Don.)

"A large deciduous shrub of the Himalayas from the Indus to Nepal. found growing at elevations of from 3,000 to 9,000 feet. It is also said

39102 to 39141—Continued.

to be met with in Tavoy. The bark of this tree yields an excellent fiber which is extensively employed in rope making and in many parts of the Himalayas it is used for the manufacture of paper. The roots are considered carminative, tonic, and diuretic and are also used in cases of bilious complaints. The wood is of a yellowish brown color with a dark center. The leaves afford a useful fodder." (*Watt, Dictionary of the Economic Products of India.*)

See S. P. I. No. 39023 for previous introduction and description.

39125. MICHELIA CATHCARTII Hook. f. and Thoms. Magnoliaceæ.

"This is a large tree which is found in the temperate forests of the Sikkim Himalayas at altitudes of 5,000 to 6,000 feet. The sapwood is large and white in color, while the heartwood is a dark olive brown and moderately hard. The wood of this species is used for planking and would do well for tea boxes." (*Watt, Dictionary of the Economic Products of India.*)

39126. OSBECKIA STELLATA Don. Melastomaceæ.

"One of the 29 species of melastomaceous plants which are found in the Indian peninsula. They are mostly herbs, sometimes shrubs, and are worth cultivating on account of their beautiful flowers; otherwise they are of little economic value. This species is a small shrub, native of the eastern Himalayas and the Khasi Hills at altitudes ranging from 4,000 to 8,000 feet, common about Darjiling. The wood is light brown and moderately hard." (*Watt, Dictionary of the Economic Products of India.*)

39127. PIERIS VILLOSA Hook. f. Ericaceæ.

"This is a small tree resembling *P. ovalifolia* in leaves, flowers, and fruits. It is a native of the alpine Himalayas at altitudes ranging from 9,000 to 10,000 feet. The leaves are hardly more villous beneath than in some forms of *P. ovalifolia*. The calyx teeth are very narrow downwards, only shortly connate; the corolla is rather wider, but not definitely separated by the absence of horns at the apex of the filament." (*Hooker, Flora of British India, vol. 3, p. 461.*)

39128. PIPTANTHUS NEPALENSIS (Hook.) Sweet. Fabaceæ.

See S. P. I. No. 39043 for description.

39129. PITTOSPORUM FLORIBUNDUM Wight and Arnott. Pittosporaceæ.

"A small tree found in the subtropical Himalayas, from Sikkim to Garhwal, ascending to 5,000 feet on the hills. The medicinal virtues and utilization of this plant have recently been brought to light. The bark is bitter and aromatic and is said by the natives to possess narcotic properties. The plant contains an aromatic resin, yellow in color and having very tenacious properties. The wood is light colored, strong and tough, but of small size." (*Watt, Dictionary of the Economic Products of India.*)

39130. RUBUS NIVEUS Thunb. Rosaceæ. **Raspberry.**

"This is a large, rambling, very valuable plant met with in the temperate Himalayas, from Kashmir to Sikkim, at altitudes between 5,000 and 10,000 feet, and also on the Khasi Hills, in the western peninsula,

39102 to 39141—Continued.

on the higher Ghats from Kanara southward, in Burma and Ceylon. The fruit, which is red, orange, or of a glaucous blue-black color, is somewhat dry, but very palatable. Large quantities are imported into the bazaars of the hill stations for sale to Europeans. The fruit of this species is similar in flavor to the common English blackberry, but vastly superior and its cultivation might be rendered very productive. The use of this species as a hedge plant is also recommended." (*Watt, Dictionary of the Economic Products of India.*)

See S. P. I. Nos. 32453 and 38574 for previous introductions.

39131. RUBUS PEDUNCULOSUS Don. Rosaceæ. **Raspberry.**
(*Rubus niveus* Wall.)

"A large, rambling shrub met with in the temperate Himalayas, from Kashmir to Bhutan, at altitudes between 6,000 and 10,000 feet on the west, and 5,000 to 11,000 feet on the east. This species yields a fruit which is very succulent and pleasantly tasted. It is yellowish or reddish brown in color." (*Watt, Dictionary of the Economic Products of India.*)

See S. P. I. No. 38575 for previous introduction.

39132. RUBUS PANICULATUS Smith. Rosaceæ. **Raspberry.**

"A very rambling climber, which has all the parts, except the upper surface of the leaves, covered with a dense tomentum. It is found in the temperate Himalayas from Hazara to Sikkim, at altitudes between 3,000 and 8,000 feet, and in the Khasi Mountains between 4,000 and 5,000 feet. The fruit consists of numerous large, round, black drupes and is edible but insipid in flavor. The wood is soft and porous with very large medullary rays." (*Watt, Dictionary of the Economic Products of India.*)

See S. P. I. Nos. 23870 and 38576 for previous introductions.

39133. SORBUS CUSPIDATA (Spach) Hedlund. Malaceæ.
(*Pyrus vestita* Wall.)

"A deciduous tree which is a native of the eastern Himalayas and may be found growing from Garhwal to Sikkim at altitudes between 9,000 and 10,000 feet. The fruit is edible and is sometimes used as food." (*Watt, Dictionary of the Economic Products of India.*)

"A deciduous tree of large size in a wild state, but rarely seen more than 35 feet high under cultivation. The habit is rather gaunt; branches few, thick, covered when young with a white wool, which afterwards falls away, leaving the shoots of a smooth, purplish brown. Leaves oval or ovate, 5 to 7 (sometimes 9) inches long by 2½ to 5 inches wide, the margins toothed, sometimes doubly so or slightly lobed; upper surface covered at first with a white cobweblike down, but soon becoming smooth, lower surface covered with a persistent thick felt, at first white or yellowish white, becoming grey later; nerves parallel, in 10 to 17 pairs; stalk one-third to 1 inch long. Flowers white, five-eighths inch across, produced in late May or early June in substantial corymbs 2 to 3 inches wide; petals woolly within; stalks and calyx very woolly.

"Native of the Himalayas, introduced in 1820, and the most striking in its foliage of all the whitebeam group. Although nearly a century has elapsed since it was first brought into cultivation, very few specimens of

39102 to 39141—Continued.

large size exist in this country [England]. The largest of these which I know is at Buckland St. Mary, Chard, which a few years ago was nearly 40 feet high. It grows well for some years, and then suddenly and without any apparent reason, sometimes in the middle of the summer, will droop and die." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 299,* under *Pyrus vestita.*)

39134. SORBUS INSIGNIS (Hook. f.) Hedl. Malaceæ.
(*Pyrus insignis* Hook. f.)

"A small, very robust tree, native of the Sikkim Himalayas at altitudes ranging from 8,000 to 11,000 feet. The branchlets are nearly as thick as the little finger, and the bud scales are rigid, chestnut brown in color and shining. The younger parts are clothed with long, rather silky, rusty brown wool, while the older parts are glabrous." (*Hooker, Flora of British India, vol. 2, p. 377.*)

39135. SORBUS MICROPHYLLA Wenzig. Malaceæ.
(*Pyrus microphylla* Wall.)

"This Pyrus, which is a native of the temperate Himalayas at altitudes of 10,000 to 14,000 feet, is possibly only a form or young state of *P. foliolosa* or *aucuparia*, but a very much more slender, subscandent plant with more deeply serrate leaflets. The Sikkim variety of this plant has red flowers, and the fruits are white or pale blue in color." (*Hooker, Flora of British India, vol. 2, p. 376.*)

39136. POUPARTIA AXILLARIS (Roxb.) King and Prain. Anacardiaceæ.
(*Poupartia fordii* Hemsl.)

"This is a rather common tree at low altitudes in western Hupeh and in Szechwan, and is chiefly confined to the valleys. It grows from 15 to 25 meters tall and the trunk is often a meter in diameter near the base. The branches are massive and form an oval or rounded head; the bark is grey, deeply fissured and persistent; the leaves are deciduous. The flowers are polygamodiœcious; the male and female flowers are borne in many-flowered panicles which spring from the axils of scales and also from the axils of the lower leaves. The hermaphrodite flowers are much larger than the unisexual flowers, and are borne in short racemes which are commonly 1-flowered by abortion and never more than 3 or 4 flowered. The leafy shoots bearing panicles of unisexual flowers look very much like branches of *Rhus succedanea* L. The fruit of this tree is yellow, oval, from 2.5 to 3 cm. long, rounded on the summit. It is eaten by the Chinese. The vernacular name is '*Hsuan tsao.*'" (*Sargent, Plantae Wilsonianae, vol. 2, p. 172–173,* under *Spondias axillaris.*)

39137. STYRAX HOOKERI Clarke. Styracaceæ.

"This is a small tree frequently met with in Sikkim and Bhutan at altitudes between 6,000 and 7,000 feet. The wood is white, close grained, and moderately hard." (*Watt, Dictionary of the Economic Products of India.*)

39138. SYMPLOCOS THEAEFOLIA Don. Symplocaceæ.

"An erect tree of the eastern Himalayas, from Nepal to Bhutan, occurring at altitudes between 4,000 and 6,000 feet. It is also common in

39102 to 39141—Continued.

the Khasi Hills and in Martaban. The leaves of this species are used as an auxiliary in dyeing with *Morinda tinctoria* and lac. The wood is white and soft and is used for fuel and for rough house posts." (*Watt, Dictionary of the Economic Products of India.*)

39139. TALAUMA HODGSONI Hook. f. and Thoms. Magnoliaceæ.

"One of the 15 species of Magnoliaceæ which are distributed throughout the Tropics of eastern Asia, Japan, and South America. This species is a native of India and may be found in the forests of the Sikkim Himalayas and the Khasi Hills at elevations ranging from 4,000 to 5,000 feet. The wood is very soft and even grained, and weighs about 21 pounds per cubic foot." (*Watt, Dictionary of the Economic Products of India.*)

39140. TRACHYCARPUS MARTIANA (Wall.) Wendl. Phœnicaceæ. **Palm.**

See S. P. I. No. 38739 for previous introduction.

39141. VACCINIUM GLAUCO-ALBUM Hook. f. Vacciniaceæ.

Distribution.—A shrub with large white persistent bracts under the pinkish flowers which are borne in dense racemes, found on the slopes of the Himalayas at an altitude of 7,500 to 10,000 feet, from Sikkim to Bhutan, in northern India.

"An evergreen shrub, 2 to 4 feet high; young stems smooth. Leaves stiff and hard in texture, oval or ovate, 1½ to 2½ inches long, five-eighths to 1¼ inches wide; pointed, with bristlelike teeth on the margins, green and smooth above, of a vivid blue-white and slightly bristly on the midrib beneath. Racemes slightly downy, 2 to 3 inches long, produced from the leaf axils and conspicuous for their large, persistent, blue-white bracts, edged with bristles. Corolla pinkish white, one-fourth inch long, cylindrical; calyx smooth, shallowly lobed. Berries one-third inch in diameter, globose, black, covered with blue-white bloom.

"Native of the Himalayas at 9,000 to 10,000 feet altitude, only hardy in the milder parts of the kingdom. It is remarkable for the vivid blue-white bloom on the fruit, bracts, and under surface of the leaves." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 626.*)

39142. COUMAROUNA ODORATA Aublet. Fabaceæ. **Tonka bean.**
(*Dipteryx odorata* Willd.)

From La Guayra, Venezuela. Presented by Mr. Thomas W. Voetter, American consul, who received them from the consular agent at Ciudad Bolivar. Received August 5, 1914.

For previous introduction and description, see S. P. I. No. 35904.

39143. VIGNA SINENSIS (Torner) Savi. Fabaceæ. **Cowpea.**

From Johannesburg, Transvaal, Union of South Africa. Presented by Mr. J. Burtt Davy. Received July 30, 1914.

"Known as *imboomba* among the Zulus and grown by them for food. It is said to be a rank grower and prolific bearer; the 49 seeds were taken from 3 pods. It is grown down the coast as far as Pondoland, and should prove useful in Florida and elsewhere in the Gulf States." (*Davy.*)

39144. MACADAMIA TERNIFOLIA Mueller. Proteaceæ. **Queensland nut.**

From Sydney, Australia. Purchased from Anderson & Co. Received at the Plant Introduction Field Station, Chico, Cal., August 4, 1914.

For description see S. P. I. No. 18382.

For illustrations of the tree, foliage, and flowers of the Queensland nut, see Plates VI and VII.

39145. MALUS SYLVESTRIS Miller. Malaceæ. **Apple.**

From Sophia, Bulgaria. Presented by Mr. Alaricus Delmard. Received August 11, 1914.

"Scions of the apples which have been found immune from *Schizoneura lanuginosa*. Dr. Lambreff informs me that he has experimented with these in orchards infested with that blight, and that while the other varieties all suffered, these have remained immune." (*Delmard.*)

39146. AMORPHOPHALLUS GIGANTEUS Blume. Araceæ.

From Medan, Deli, Sumatra. Presented by Mr. L. P. De Bussy. Received August 11, 1914.

Distribution.—An herbaceous perennial which sends up from a large bulb an enormous pinnatifid leaf and a purplish spathe 9 inches long surrounding a white spadix, which is followed by a large red fruit; found in Java and Borneo.

39147. GOSSYPIUM BARBADENSE L. Malvaceæ. **Cotton.**

From Lima, Peru. Presented by Mr. A. Martin Lynch. Received July 1, 1914.

"*Mit Afifi* cotton."

39148. ORYZA SATIVA L. Poaceæ. **Rice.**

From Lima, Peru. Presented by Mr. A. Martin Lynch. Received July 30, 1914.

"Rice seed called *Carolina* in the northern part of Peru, and cultivated in the valley of Pacasmayo and Lambayeque." (*Lynch.*)

39149 to 39151. HORDEUM VULGARE L. Poaceæ. **Peruvian barley.**

From Peru. Presented by Mr. William W. Handley, American consul general, Callao, Peru. Received August 5, 1914. Quoted notes by Mr. Handley.

39149. "Peruvian barley grown in the southern district of Arequipa, Peru."

39150. "Peruvian barley grown in the southern district of Cuzco, Peru."

39151. "Peruvian barley grown in the southern district of Juliaca, Peru."

39152 and 39153.

From the Philippine Islands. Presented by Mr. H. R. Reed, acting superintendent, Singalong Experiment Station. Received August 7, 1914. Quoted notes by Mr. Reed.

39152 and 39153—Continued. (Quoted notes by Mr. H. R. Reed.)

39152. TRITICUM AESTIVUM L. Poaceæ. **Wheat.**
(*Triticum vulgare* Vill.)

"Spanish *Zarraceno* or *Candeal*. Grown in Cagayan Province. Introduced into the Philippines 50 years ago. Is planted at the end of the rainy season; is grown on highlands and matures in 90 days."

Candeal is recognized in Argentina, where it is commonly grown, as a variety of *T. durum* Desf. This number, however, is *T. aestivum* L.

39153. GOSSYPIUM sp. Malvaceæ. **Kidney cotton.**

"A plant 3 to 9 feet high, flowers large, yellow. Is cultivated for ornamental purposes and grows wild in the Philippines. Samples of fiber were sent to cotton firms in the United States, and comments were very favorable."

39154. BAMBOS sp. Poaceæ. **Bamboo.**

From Burma, India. Presented by Rev. Robert Harper, American Baptist Mission, Pyinmana. Received August 8, 1914.

"The bamboo from which I gathered the seeds was not very large, but it was tall and graceful. Several bunches were in seed, but I collected the best bunches." (*Harper.*)

39155. MANGIFERA INDICA L. Anacardiaceæ. **Mango.**

From Mount Coffee, Liberia, Africa. Presented by Mr. Henry O. Stewart. Received August 18, 1914.

39156. RICINUS COMMUNIS L. Euphorbiaceæ. **Castor bean.**

From the Philippine Islands. Presented by Mr. H. R. Reed, acting superintendent, Singalong Experiment Station. Received August 7, 1914.

39157. MEDICAGO SATIVA L. Fabaceæ. **Alfalfa.**

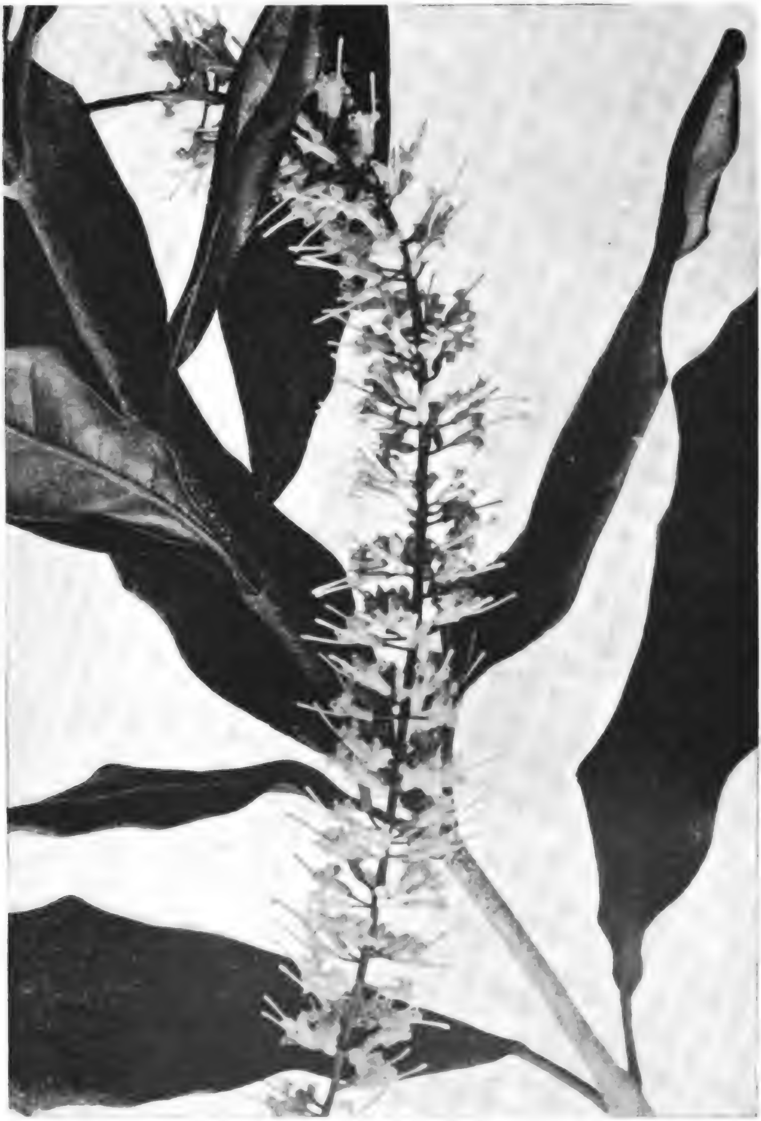
From Stockholm, Sweden. Presented by Mr. Ernest L. Harris, American consul general. Received August 19, 1914.

"Alfalfa seed in this country is called *Blå Lucerne* or *Medicago sativa*. I have been informed that the same is imported from Germany, but that the actual country of origin is Hungary. Alfalfa is grown in Sweden, but the seed does not ripen. While still green it is cut and used as fodder or for mixing with other animal feeds." (*Harris.*)

39158 to 39162. ZEA MAYS L. Poaceæ. **Corn.**

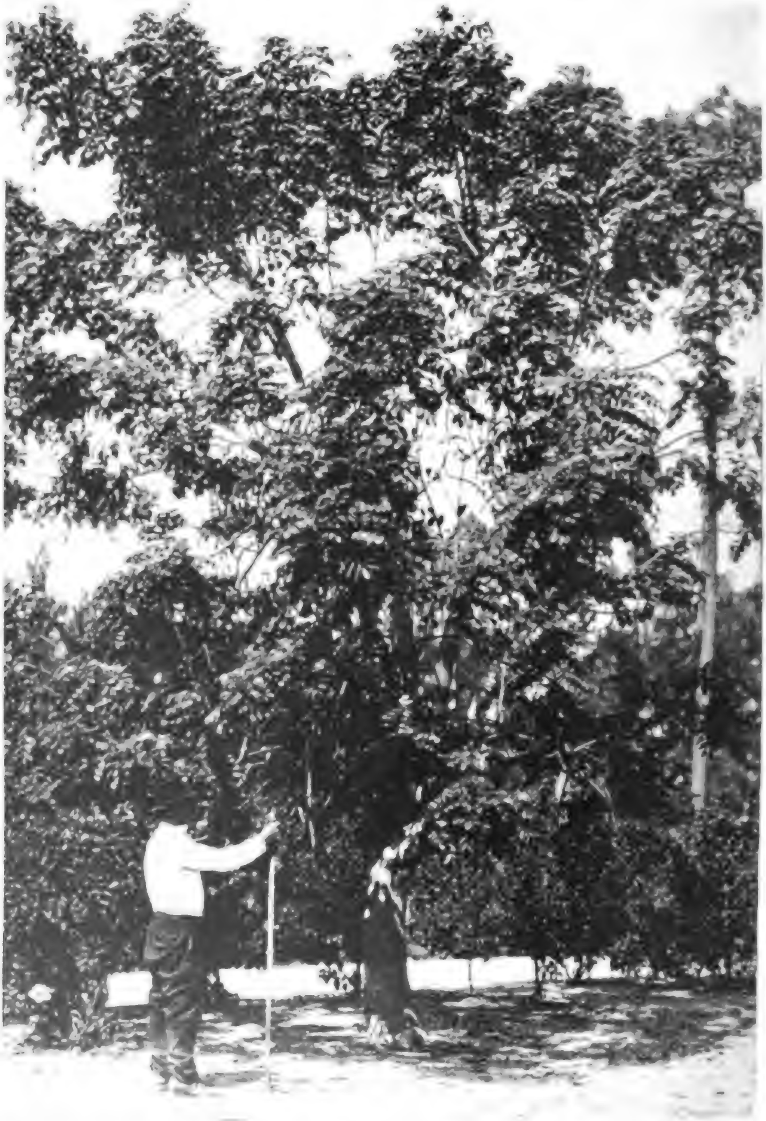
From Yachowfu, China. Presented by Dr. Edgar T. Shields, West China Baptist Mission, who received them from Mr. Yoh Peh Yin, Lusan, near Yachow. Quoted notes by Dr. Shields.

39158. "No. 1. Yellow corn, planted about April 5, or may be planted 10 days earlier or later. They reckon that this is the very best variety for feeding cattle. The country people make corn cakes of the meal, mixing the same with boiling water and afterwards either baking or steaming the cake. They say that cakes made of this variety of corn digest more slowly than any of the other kinds, but the flavor of the cake is good. This corn ripens in about 100 days after planting. They plant from three to five grains in a hill, afterwards thinning it out to two stalks."



FOLIAGE AND FLOWERS OF THE QUEENSLAND NUT (MACADAMIA TERNIFOLIA MUELLER), AS GROWN IN FLORIDA. (SEE S. P. I. NO. 39144.)

The leaves are evergreen and of a thick, tough character, giving the tree an attractive appearance. (Photographed, natural size, by Wilson Popenoe, Miami, Fla., April 18, 1915; P16345FS.)



SPATHODEA CAMPANULATA BEAUV., A STRIKINGLY HANDSOME ORNAMENTAL TREE FOR FLORIDA. (SEE S. P. I. NO. 39222.)

This tall, straight tree from western tropical Africa has succeeded remarkably well in India and Java as a shade tree. Originally brought from Jamaica by Mr. W. J. Matheson, it is now the largest specimen in the United States. With its large, bright orange-red flowers produced at the tips of the branches, it is very ornamental and conspicuous at a distance. (Photographed by Wilson Popenoe, at Four Way Lodge, the residence of Mr. Matheson, Cocoanut Grove, Fla., April 15, 1916; P16716FS.)

39158 to 39162—Continued. (Quoted notes by Dr. E. T. Shields.)

39159. "No. 2. White corn, planted about April 5. It has a finer taste and digests easier than No. 1."

39160. "No. 3. Red corn, planted about April 5. The taste resembles that of the yellow or No. 1 [S. P. I. No. 39158]. This is the best variety for making their whisky, which is a very intoxicating drink. Whisky is also made from No. 1, but this is the variety most used."

39161. "No. 4. Red and yellow striped. The same as No. 1, except for the color."

39162. "No. 6. White corn. This variety is to be planted 10 to 15 days later than the other varieties (which are planted about April 5). The taste is very good, and the corn is very gelatinous."

39163. NICOTIANA TABACUM L. Solanaceæ. **Tobacco.**

From the Philippine Islands. Presented by Mr. H. R. Reed, acting superintendent, Singalong Experiment Station. Received August 7, 1914.

"A variety of tobacco commonly grown in Cagayan Valley. Plants grow 4 feet high, leaves large." (*Reed.*)

39164. PERSEA AMERICANA Miller. Lauraceæ. **Avocado.**
(*Persea gratissima* Gaertn. f.)

From Tumbala, Chiapas, Mexico. Presented by Mr. Stanford N. Moreson. Received August 26, 1914.

39165. SACCHARUM OFFICINARUM L. Poaceæ. **Sugar cane.**

From Brisbane, Australia. Presented by Mr. Leslie Gordon Corrie. Received August 26, 1914.

"*Quacsofoca.* The standard fodder cane grown here for stock food purposes and known as the Indian cane. Amongst other seedlings tested for this purpose we have secured one that from all points is an improvement upon the old standard. I am sending some cuttings which you will be able later on to distribute to some of your Southern States. We have found it here of superior value from the standpoints of food value, softness, hardiness against low temperatures, and weight per acre. It is a prodigious yielder." (*Corrie.*)

39166 and 39167. PENNISETUM spp. Poaceæ.

From Salisbury, Rhodesia. Presented by the Department of Agriculture. Received August 24, 1914.

39166. PENNISETUM SCHIMPERI Richard. **Napier's fodder grass.**

39167. PENNISETUM MACROURUM Trinius. **M'fufu grass.**

Distribution.—A perennial grass growing 3 feet or more high in the central and coast region of South Africa.

39168 and 39169.

From Sibpur, Calcutta, India. Presented by the superintendent, Royal Botanic Gardens. Received August 24, 1914.

39168. MEROPE ANGULATA (Willd.) Swingle. Rutaceæ.
(*Citrus angulatus* Willd.)

"A curious and as yet little known salt-resistant plant related to Citrus, of interest for trial as a stock. A small spiny tree bearing curious

39168 and 39169—Continued.

angular fruits and growing in the tidal swamps in southern Java; leaves coriaceous, thick, 3 to 5 by 1 to 1½ inches, borne on simple petioles; flowers white, 5 parted with 10 free stamens, pistil projecting beyond the stamens; fruits triangular, 1 to 2 inches long, in cross section approximately an equilateral triangle three-fourths to 1 inch on a side. This peculiar thick-leaved plant thrives in saline soils and is being tested as a stock for other citrus fruits by the U. S. Department of Agriculture." (*W. T. Swingle. In Bailey, Standard Cyclopedia of Horticulture, vol. 4, p. 2038.*)

39169. Rubus ellipticus Smith. Rosaceæ. **Raspberry.**

See S. P. I. No. 33342 for previous introduction.

39170 to 39172.

From Donga, Northern Nigeria, Africa. Presented by Rev. C. L. Whitman, Sudan United Mission, London, E. C., England. Received August 11, 1914. Quoted notes by Mr. Whitman.

39170. Holcus sorghum L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

"*Guinea corn.* It is usually planted in May and harvested in December."

39171. Sesamum orientale L. Pedaliaceæ. **Sesame.**
(*Sesamum indicum* L.)

"*Benise seed.* This has a much shorter season than the guinea corn and is planted at various times. It is grown mostly by the Munshi tribe and is sold by them to the English trading firms. Only a very little is used for food."

39172. Gossypium sp. Malvaceæ. **Cotton.**

39173. Persea americana Miller. Lauraceæ. **Avocado.**
(*Persea gratissima* Gaertn. f.)

From Lumija, Chiapas, Mexico. Presented by Mrs. H. H. Markley. Received August 28, 1914.

"These are slightly pear shaped, 5 to 6 inches long and 10 inches in circumference at the largest part. The skin is very thin, tree a prolific bearer, growing 40 or more feet, symmetrical in shape, like a well-formed oak. Our temperature ranges from 70° to 100° F." (*Mrs. Markley.*)

39174. Diospyros macrophylla Blume. Diospyraceæ. **Persimmon.**

From Buitenzorg, Java. Presented by the director, Botanic Gardens. Received August 31, 1914.

See S. P. I. No. 30521 for previous introduction.

"A tree 60 feet high, with dark terete branches. Leaves alternate, oval or oval oblong, acuminate at apex, rounded or subcordate at base, thinly coriaceous, nearly glabrescent below, with clear, slender, arching lateral veins, glabrous above, 3 to 10 inches long by 1½ to 4½ inches wide; petioles one-sixth to one-fourth inch long. Male flowers axillary, paniculate, one-fourth inch long, pubescent; panicles many flowered, 1 to 1½ inches long, ultimate pedicels mostly short. Calyx shortly 3 to 5 fid, globose urceolate, three-sixteenths inch long, lobes deltoid; corolla silky outside, ovoid in bud, shortly five lobed, tube very

39174—Continued.

crass and hard; stamens 12, unequal, in pairs, glabrous. Female cymes few flowered, short, calyx four to five fid, hairy on both sides, accrescent in fruit; fruit tomentose, subglobose, 1 inch or more in diameter.

"Java, in mountainous places, Blume. Local name, *Kitjallung*." (*Hiern, Monograph of the Ebenaceæ, p. 237, 1873.*)

39175. PRUNUS AVIUM L. Amygdalaceæ. **Cherry.**

From Rome, Italy. Presented by Dr. Gustav Eisen. Received August 24, 1914.

"*Marasca grossa di Firenze*, probably a seedling from *Marasca di Piedmonte*. Very large, dark brownish black, flesh very firm, very slightly adhering to the stone, which, however, separates readily. Subacid, sweet, and slightly astringent. Fine shipper. Suitable both for table and preserves. This cherry is larger than any I have seen in California, and, in my opinion, it is of exceptional qualities." (*Eisen.*)

39176. CLAUCENA LANSIUM (Lour.) Skeels. Rutaceæ. **Wampi.**
(*Clausena wampi* Oliver.)

From Hongkong, China. Presented by Mr. W. J. Tutcher, superintendent, Botanical and Forestry Department. Received August 22, 1914.

See S. P. I. Nos. 25546 and 31730 for previous introductions, and 38708 for description.

39177. CHLORIS VIRGATA Swartz. Poaceæ.
Australian Rhodes grass.

From Burringbar P. O., New South Wales. Presented by Mr. B. Harrison. Received August 26, 1914.

Var. *decora.*

"This grass is a rapid grower and a heavy yielder of nutritious fodder. It attains the height of 3 and 4 feet, is relished by stock, and will retain its verdure when other grasses are dried up, and if cut before seeding makes palatable hay. According to analysis, it is one of the richest grasses we possess, either imported or indigenous. It is only quite recently that it has come into prominence, principally through the favorable reports from Queensland, where it is said to have succeeded wonderfully in clay-pan, wind-swept, and sun-scorched country where other grasses were difficult to establish. It is, however, a native of this State also, having been identified in 1904, and it will probably succeed even with a lighter rainfall and under more adverse conditions than the imported species (*C. gayana* and *virgata*) which have a great reputation as drought resisters. The seed is very light, is carried some distance by the wind, and the grass spreads rapidly." (*Harrison.*)

39178. DENDROCALAMUS HAMILTONII Nees and Arn. Poaceæ.
Bamboo.

From Darjiling, India. Presented by Mr. G. H. Cave, Lloyd Botanic Garden, at the request of Mr. J. L. Rock, Division of Forestry, Honolulu, Hawaii. Received August 27, 1914.

"It is a large bamboo that flowers sporadically and also gregariously. It occurs in the northeast Himalayas, Assam, the Khasi Hills, Sylhet, and

39178—Continued.

Upper Burma, and is distributed westward to the Sutlej, though beyond Nepal it is doubtfully indigenous. The culms run from 40 to as much as 80 feet in height and from 4 to 6 inches in diameter; the nodes are marked with root scars, the internodes are 12 to 20 inches in length and the walls half an inch thick. It is the common bamboo of Darjiling, the Duars, and Assam, and is universally employed for all kinds of basket and mat work. For building purposes it is not much esteemed. The young shoots are eaten as a vegetable, and in Assam a specially prepared substance known as *gass-tenga* is eaten as a luxury. The inner layer of the culm sheath is utilized for covering Burmese cigarettes. Referring to its straggling habit, Mr. Oliver says: 'When they have no trees to support them, the main stems bend over, forming impenetrable thickets, and the lateral branches ascend vertically, often forming shoots nearly as long as the main stems.' Mr. Manson alludes to the value of this species to the tea planters of the Darjiling district in shading their plantations from hot and violent winds." (*Watt, Commercial Products of India.*)

39179. PHYSALIS PERUVIANA L. Solanaceæ. **Cape-gooseberry.**

From Tolga via Cairns, Australia. Presented by Mr. J. A. Hamilton. Received August 25, 1914.

39180 and 39181. RUBUS sp. Rosaceæ.

From Srinagar, Kashmir, India. Presented by the director, Department of Agriculture. Received August 26, 1914.

39182 and 39183. MADHUCA spp. Sapotaceæ. **Mahwa.**

From Sibpur, Calcutta, India. Presented by the superintendent, Royal Botanic Gardens. Received August 24, 1914.

"It may be said that there are two great products of these trees [formerly known as *Bassia latifolia*, *B. longifolia*, and *B. malabarica*], the edible flowers and the oil-bearing seeds. A gum or gutta (the milky sap hardened) flows from incisions or abrasions on the stem. In some parts of the country ringing of the stem is practiced just on the setting of the fruits. When this is done the gum may be obtained in abundance. The bark is employed as a dye. The flowers, the oil, the spirits distilled from the flowers, and the bark are all used medicinally. Lastly the timber has some merit, but the trees, as a rule, are too valuable to allow their being killed for this purpose. The mahua [mahwa] shows its leaves from February to April. The cream-colored flowers appear in great clusters (of 30 to 50) near the ends of the branches, from March to April, and are soon followed by the young leaves. Preparatory to the harvest of flowers, the people clear the ground below the trees by burning the weeds and smoothing the soil. About March the flowers begin to come to maturity, and every morning just after sunrise the succulent corolla tubes fall in showers to the ground. This continues till the end of April, each tree yielding from 2 to 4 maunds (2½ to 5 bushels) of flowers, but usually the fall from a single tree is complete in about 7 to 10 days. A drying floor is prepared in a position central to a selected batch of trees. The ground is smoothed and beaten; on this the flowers as collected day by day are spread out to dry in the sun. In a few days they shrink in size, change in color to a reddish brown, and their peculiar sweet smell becomes more concentrated and the resemblance to that of mice more intense. But the mahua that is intended for sale is not

39182 and 39183—Continued.

dried to the same extent as that set apart for home consumption, and naturally so, since the loss in weight is considerable. But mahua is eaten extensively while fresh. In the dried form it is cooked and eaten along with rice and other grains or food materials. Before being eaten the dry corolla tubes are beaten with a stick to expel the stamens; the quantity required is then boiled for six hours or so and left to simmer until the water has been entirely evaporated and the mahua produced in a soft, juicy condition. Tamarind or sal (*Shorea robusta*) seeds and gram (chick-pea) are frequently eaten along with mahua. By the better classes it is fried with ghi (butter) or with mahua oil. It is extremely sweet, but the power to eat and digest this form of food is an acquired one, so that few Europeans are able to consume more than one flower without having disagreeable after effects. Sometimes the mahua is dried completely, reduced to a powder, and mixed with other articles of food. In that condition it is often baked into cakes. Sugar may also be prepared from the flowers, or they may be distilled and a wholesome spirit prepared, the chief objection to which is its peculiar penetrating smell of mice. Nicholls estimated that in the Central Provinces, 1,400,000 persons use mahua as a regular article of food, each person consuming one maund (1¼ bushels) per annum, an amount that would set free about 1⅓ maunds of grain, or about 30 per cent of the food necessities of the people in question. This, the lowest estimate, comes to one quarter of a million pounds sterling which the trees present annually to these Provinces." (*Watt, Commercial Products of India*, which see for discussion of the spirit manufacture and the use and manufacture of oil and butter from the seeds.)

39182. MADHUCA INDICA Gmelin.
(*Bassia latifolia* Roxb.)

Distribution.—A tree 50 feet tall found throughout central India at an altitude of 1,000 to 4,000 feet.

39183. MADHUCA LONGIFOLIA (L.) Coville.
(*Bassia longifolia* L.)

Distribution.—A tree 50 feet tall found in Malabar and in Ceylon.

39184. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

From the Seychelles Islands. Presented by Mr. P. Rivaly Dupont, curator, Botanical Station. Received August 12, 1914.

39185 and 39186.

From Asmara, Eritrea, Africa. Presented by the director, Government of the colony of Eritrea, Government Office, Bureau of Colonization. Received August 24, 1914.

39185. JUNIPERUS PROCERA Hochst. Pinaceæ. **East African cedar.**

See S. P. I. Nos. 22775 and 27505 for previous introductions and description.

"A tree attaining in Eritrea from 20 to 25 meters in height and 1 meter in diameter, with oval, open head; bark cracked into long narrow plates, boughs cylindrical. Leaves scalelike, small, in four series, semioval or lengthened linear in the same plant. Flowers diœcious. Fruit globose ovoid or depressed globose, 5 to 7 mm. in diameter, bluish black and pruinose at maturity. Wood with yellowish white sapwood,

39185 and 39186—Continued.

very distinct from the heartwood, which is colored dark red, odor very strongly aromatic, characteristic. This wood, compact, with fine grain and susceptible of beautiful polish, is largely used for the manufacture of furniture, doorframes, for beams which resist decay, and for the manufacture of pencils. For this last use Schweinfurth has found it superior to the American species, but so far as I know no experiments have been made. . . . The indestructibility of this wood is such that it resists intact the dissolving action of the atmospheric agents, of insects, and of fungi, even after several years, since the tree has been cut, fallen, and left in the forest." (*Adriano Fiori, Boschi e Piante legnose del l'Eritrea.*)

39186. ROSA ABYSSINICA R. Br. Rosaceæ. **Rose.**

Distribution.—A white-flowered climbing rose, probably a form of the musk rose (*R. moschata* Miller), found in Abyssinia.

39187. RUBUS ROSAEFOLIUS Smith. Rosaceæ. **Raspberry.**

From Port Louis, Mauritius. Presented by Mr. G. Regnard. Received August 31, 1914.

"Seeds of our yellow-fruited Rubus. This variety is very scarce, probably because they are generally planted together with the common red variety with which it becomes cross-fertilized very easily, and the red predominates. I should therefore advise you to have these planted at a good distance from the red variety. The sowing of the yellow variety should be made in a rich soil and the plants cultivated in sheltered deep soil in the shade and well watered when in want of rain. The Rubus grows naturally by roots." (*Regnard.*)

39188 to 39190.

From Mayaguez, Porto Rico. Presented by Mr. W. E. Hess, plant propagator, Porto Rico Agricultural Experiment Station. Received August 29, 1914. Quoted notes by Mr. Hess.

39188. ACRISTA MONTICOLA Cook. Phœnicaceæ. **Palm.**

"*Palma de Sierra.* The mountain palm of Porto Rico covers many mountain slopes, especially in the eastern part of the island between 2,000 and 3,000 feet above sea level. It apparently thrives in this very humid, cool atmosphere and usually forms a clear stand. This palm greatly resembles *Areca bauerii*, grown to a great extent as a decorative palm in greenhouses, and young plants of Acrista are equally attractive. The bud of the mountain palm furnishes a good cabbage, but is not as sweet as those of the royal palm. Its black fruits are the size of a cherry and are relished by hogs."

39189. AEDIA ATTENUATA Cook. Phœnicaceæ. **Llume palm.**

"The tallest of Porto Rico palms, reaching a height of 60 to 100 feet. Its foliage resembles the royal palm, but is shorter; the trunk never exceeds 6 to 8 inches in diameter. This palm is found only on limestone hills and usually feeds upon nothing but the humus collected in the cracks of these rocks. The large bunches of orange-red berries, which are the size of a small cherry, are very attractive and are fed to chickens and hogs."

39188 to 39190—Continued. (Quoted note by Mr. W. E. Hess.)

39190. CALATHEA LUTEA (Aubl.) G. F. W. Meyer. Marantaceæ. **Pampano.**

"This is one of our finest native foliage plants, attaining a height of 10 to 12 feet; its dark-green leaf blades are oblong, round at the apex, 4 to 5 feet long, and 2 to 3 feet wide. The under side is covered with a blue powder. The graceful curved veins give a characteristic appearance. This plant likes rich soil and plenty of moisture. Planted with bananas and other foliage plants near a pond it will rival in beauty any of its neighbors."

39191. SALIX sp. Salicaceæ. **Willow.**

From Semipalatinsk, Siberia. Presented by Prof. N. E. Hansen, South Dakota Agricultural Experiment Station, Brookings, S. Dak.

"Cuttings from small trees I found growing along the creek about 80 miles southwest of Semipalatinsk. This is a very dry region with 8 inches of annual rainfall and the temperature ranging from 50° F. below zero in winter to 106° above in summer. The remarkable characteristic about this willow is that the young shoots can be tied into knots without breaking, so it should be a good basket willow and good for tying bundles of nursery stock." (*Hansen.*)

39192. HORDEUM VULGARE L. Poaceæ. **Barley.**

From Tripoli, Libya, Africa. Presented by Dr. F. Franceschi, Florence, Italy. Received September 3, 1914.

"A local variety, of which there is considerable export to Germany and England for beer factories; *Sxir* in Tripolino, *Orze* in Italiano." (*Franceschi.*)

39193. TRITICUM AESTIVUM L. Poaceæ. **Rivett's Red wheat.**
(*Triticum vulgare* Vill.)

From Coggeshall, Essex, England. Presented by John K. King & Sons. Received September 2, 1914.

"Pedigree stock of Rivett's Red wheat."

39194. ZIZIPHUS JUJUBA Miller. Rhamnaceæ. **Jujube.**
(*Ziziphus sativa* Gaertn.)

From Peking, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received August 24, 1914.

"(Sample 119b. Peking, China. June 22, 1914.) A very large-fruited variety of jujube, passing under the trade name of *Hsiang tsao*, or 'rattling jujube,' referring to the fact that the seeds rattle when shaken. Officially known as *Ta yuan tsao*, or 'big round jujube.' These jujubes come from the vicinity of Paihsiangchen, southwestern Shansi; they are a rare delicacy in Peking, selling for 30 cents (Mexican) per catty. They are eaten stewed with sugar or honey as a compote with rice and also boiled in rice, the same as western people use prunes. Soaking in water over night improves their delicacy of flavor. Scions sent under No. 1140 [S. P. I. No. 38243]." (*Meyer.*)

39195. PELARGONIUM sp. Geraniaceæ. **Geranium.**

From Genoa, Italy. Presented by Mr. John E. Jones, American consul general. Received August 21, 1914.

"Cuttings of a new Pelargonium." (*Jones.*)

39196. Balanites maughamii Sprague. Zygophyllaceæ.

From Swaziland, Africa. Presented by Mr. J. Burtt Davy, botanist, Agricultural Supply Association, Johannesburg, Transvaal, Union of South Africa. Received September 1, 1914.

"The seed is considered a valuable oil seed in those parts of the country in which it grows; that is to say, at altitudes below 1,500 feet in the subtropical belt, but with a comparatively low rainfall, probably not more than 15 inches, this coming during the summer season. The tree is a handsome one, though not very large, and should be useful in Florida." (*Davy.*)

"This species of Balanites is a native of Portuguese East Africa and may be found growing in the Lebombo Mountains, the Madanda Forest, and by the Umbeluzi and Rovuma Rivers. It is a tree which reaches a height of about 50 feet, with irregular-shaped bole up to 1⅜ feet in diameter. According to the report of the Imperial Institute, the fruits of *Balanites maughamii* seem unlikely to be of economic value for export, owing to the difficulty of removing the external sugary pulp and extracting the kernel from the thick, fibrous shell in which it is inclosed, but may, however, be of considerable importance for local consumption. The oil obtained from these kernels is clear, yellow, and liquid, possessing no marked smell or taste and having the following constants: Specific gravity, 0.916; saponification value, 198.5; iodine value, 100. The oil, if produced on a commercial scale, would probably realize the current price of refined cottonseed oil, but it is thought that the difficulties mentioned above would prevent its production on a large scale. Judging from the localities where this species is known to occur, it might be expected to do well in tropical and subtropical countries with a well-marked dry season. It would not be advisab'e to plant it on a large scale, however, until a satisfactory method of extracting the kernel has been devised." (*Kew Bulletin of Miscellaneous Information, 1913, No. 4, p. 136.*)

39197. Amaranthus gangeticus L. Amaranthaceæ. **Amaranth.**

From Seharunpur, India. Presented by Mr. A. C. Hartless, superintendent, Government Botanical Gardens. Received September 4, 1914.

"Var. *tristis*. *Lal-sag*, a vegetable that we use here during our hot season; it should be sown in the summer, as it will not stand cold." (*Hartless.*)

39198. Lupinus pilosus Murray. Fabaceæ. **Lupine.**

From Kyimbila, German East Africa. Presented by Mr. Ad. Stolz. Received August 31, 1914.

"African lupine growing wild on sandy soil." (*Stolz.*)

Distribution.—An annual lupine with digitate leaves and large blue flowers, found in the countries bordering on the Mediterranean from Greece to Palestine.

39199 to 39218. Oryza sativa L. Poaceæ. **Rice.**

From Buitenzorg, Java. Presented by the Botanic Gardens. Received September 8, 1914.

39199. *Berod.*
39200. *Pelak.*
39201. *Pandan.*
39202. *Glindoeran.*
39203. *Kawoeng.*
39204. *Balidjembel.*
39205. *Dyalen.*
39206. *Laradjawi.*

39199 to 39218—Continued.

39207. *Mamas.*
39208. *Kowel.*
39209. *Menoer.*
39210. *Carolina.*
39211. *Baök.*
39212. *Sarilaia.*
39213. *Molok.*
39214. *Solo.*
39215. *Rogol.*
39216. *Walen.*
39217. *Osog.*
39218. *Gonde.*

39219 to 39222.

From Cuba. Presented by Mr. Juan T. Roig, botanist, Cuban Agricultural Station, Santiago de las Vegas, Cuba. Received September 10, 1914. Quoted notes by Mr. Roig.

39219. COPERNICIA GLABRESCENS Wendland. Phœnicaceæ. **Hat palm.**

"Seeds of one of the Cuban hat palms called *yarey*, collected at San Juan de la Palma, Guantanamo, Oriente, Cuba. It is used mostly for thatching."

39220. PERESKIA PORTULACIFOLIA (L.) Haworth. Cactaceæ.

From Noraliche, Guantanamo, Oriente, Cuba.

39221. STERCULIA CARTHAGINENSIS Cavanilles. Sterculiaceæ. **Anacahuita.**

"The most popular tree at Guantanamo. From the flowers a decoction is made against cough. The seeds are toasted and eaten like peanuts."

Distribution.—Tropical America, extending from southern Mexico to Brazil and naturalized in the West Indies.

39222. SPATHODEA CAMPANULATA Beauv. Bignoniaceæ.

From Santiago de las Vegas, Cuba.

See S. P. I. Nos. 9007 and 31953 for previous introductions and description.

For an illustration of this handsome ornamental tree, see Plate VIII.

39223 to 39226. PASSIFLORA MALIFORMIS L. Passifloraceæ. Passion fruit.

From Bogota, Colombia. Presented by Mr. F. L. Rockwood, clerk of the legation. Received September 11, 1914. Quoted notes by Mr. Rockwood.

"In my opinion, the yellow *kuruba* will be a valuable addition to table fruits in the United States, for it grows in a fresh, cool climate, and it is the main market fruit of that class here. The red *kuruba* is not common, and the families that have it think it is the best, but it is not a prolific bearer and not so hardy. The indio [S. P. I. No. 38882], the yellow, and the red are all more or less of one family. A climbing vine, it covers walls, outhouses, and small buildings with evergreen, continually bearing fruit. The flowers are very handsome, and it is thought to be more or less a passion flower and fruit. The surroundings and conditions have turned it into a market fruit."

39223. "Yellow kuruba."

39224. "Native yellow kuruba of the finest quality."

39225. "The red kuruba is the most nearly perfect in both fruit and flower and is difficult to obtain. It is highly prized by families for decoration and table use and is not to be found on the market."

69226. "Red kuruba." See S. P. I. No. 39225.

39927. Triticum dicoccum Schrank. Poaceæ. Emmer.

From Bombay, India. Presented by Mr. Henry D. Baker, American consul, who secured it from Mr. Frank Harrison, Bombay. Received September 11, 1914.

"Seeds of wild Kathiawar wheat, which is supposed to be the original parent of all wheats in the world, from the district of Kathiawar, on the west coast of India, north of Bombay, and in the Bombay Presidency." (*Baker.*)

"This wheat grows wild in Kathiawar, a very dry tract on the west coast of India, north of Bombay. It is said that all wheats in existence can be traced back to this stock and that it spread from India westward via Chaldea (Mesopotamia) and Egypt thousands of years ago. Natives who eat this wheat declare it is more palatable and has a better food value than any of the modern varieties grown in India. It has great drought-resisting properties and should do well in the arid tracts of the Southern States of America. Natives collect this wheat in the jungle and separate it from the straw by treading, i. e. cattle are made to walk over it in a circle until the grain is separated from the straw. They then pass the grain through hand querns, in order to get rid of the chaff, or husk, which is very thick. We find, however, that a rice huller manufactured by an American firm will hull it in a most satisfactory manner." (*Harrison.*)

"A variety of white spring emmer, such as is commonly grown in our Northwestern States. It is interesting, however, to have the opinion of the natives concerning it." (*M. A. Carleton.*)

39228 to 39260. Zea mays L. Poaceæ. Corn.

From Copacabana, Peru. Presented by Capt. James W. Tynan, Puno, Peru. Received September 15, 1914.

39228. Dark red.
39229. Red.
39230. Yellow.
39231. Yellow.
39232. Red and white banded.
39233. Red and white variegated.
39234. Yellow.
39235. White.
39236. Orange endosperm.
39237. Maroon and white banded.
39238. Yellow.
39239. Cream.
39240. Mottled yellow and black.
39241. Blue and white aleurone.
39242. Cream.
39243. Red and white variegated.
39244. Light variegated.
39245. Dark red and yellow variegated.
39246. White.
39247. Maroon and white banded.
39248. Faint yellow.
39249. Yellow and gray.
39250. Red and white banded.
39251. Yellow.
39252. Red.
39253. Maroon.
39254. Orange and yellow.
39255. Red pericarp.
39256. Cream.
39257. Light yellow.
39258. Red and yellow variegated.
39259. Dark yellow.
39260. Cream.

39261. Phyllanthus acida (L.) Skeels. Euphorbiaceæ.

(*Phyllanthus distichus* Muell. Arg.)

From Guayaquil, Ecuador. Presented by Mr. Frederic W. Goding, American consul general. Received September 17, 1914.

39261—Continued.

"*Grosella.* Grows on a tree 13 feet high and 4 or 5 inches in diameter, the branches beginning about 6 feet from the ground. The fruit grows from the branches direct, in small clusters, entirely separated from the leaf branch. The berry is prized very highly for jams and jellies." (*Goding.*)

For illustrations of the habit, fruit, and foliage of this tree as grown in Florida, see Plates IX and X.

39262. SACCHARUM OFFICINARUM × CILIARE. Poaceæ. **Sugar cane.**

From Cienfuegos, Cuba. Presented by Mr. Robert M. Grey, superintendent, Harvard Botanical Station.

"Cuttings of a hybrid cane, the result of a cross between our field sugar cane *Saccharum officinarum* L. ♀ and *Saccharum ciliare* ♂ (S. P. I. No. 17991.) In carrying on my hand hybridizing work (1909) among the canes I found *S. ciliare* in flower and used the pollen on one of my seedling varieties of *S. officinarum*, which resulted in the present cross. To be sure, it has no commercial value, as it contains but little sugar, but it may be of interest to know that the species will cross-fertilize." (*Grey.*)

39263. ALLIUM CEPA L. Liliaceæ. **Onion.**

From Valencia, Spain. Presented by Mr. Claude I. Dawson, American consul. Received September 19, 1914.

39264 to 39286.

From Buitenzorg, Java. Presented by Mr. T. E. Van der Stok, Chief of the Station for Selection of Annual Crops, Botanic Garden. Received September 8, 1914. Quoted notes by Mr. Van der Stok.

39264 to 39282. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

"Generally growing in the mountains on a very small scale."

39264. *Gandroeng keupeul.*
39265. *Tjantel.*
39266. *Tjantel oetjir.*
39267. *Gandroeng.*
39268. *Gandroeng tarigoe* or *Padimekah.*
39269. *Gandroeng djebrag.*
39270. *Gandroeng tjinde.*
39271. *Tjantel item.*
39272. *Tjantel tjondro.*
39273. *Gandroeng goeweup.*
39274. *Gandroeng.*
39275. *Gandroeng sekoel.*
39276. *Tjantel.*
39277. *Gandroeng titinggi.*
39278. *Gandroeng boerajot.*
39279. *Gandroeng beureum.*
39280. *Gandroeng degem.*
39281. *Gandroeng djabag.*
39282. *Gandroeng koempaj beureum.*

39283 to 39285. CHAETOCHLOA ITALICA (L.) Scribner. Poaceæ. **Millet.**
(*Setaria italica* Beauv.)

"Generally growing in the mountains on a very small scale."

39283. *Koenjit boentoet koetjing.*

39284. *Djawawoet.*
39285. *Koenjit ramo koetjing.*

39264 to 39286—Continued. (Quoted note by Mr. T. E. Van der Stok.)

39286. Coix lacryma-jobi L. Poaceæ. **Job's-tears.**

"*Handjeli.* Generally growing in the mountains on a very small scale."

39287 to 39293.

From Santiago de las Vegas, Cuba. Presented by Mr. Juan T. Roig, botanist, Cuban Experiment Station. Received September 22, 1914.

39287 to 39290. Copernicia spp. Phœnicaceæ. **Palm.**

39287. Copernicia macroglossa Wendland.

Jata.

39288. Copernicia hospita Martius.

Guano hediondo.

39289. Copernicia glabrescens Wendland. **Hat palm.**

Yarey. See S. P. I. No. 39219 for previous introduction.

39290. Copernicia hospita Martius.

Guano espinoso.

39291. Paurotis wrightii (Gris. and Wendl.) Britton.
(*Copernicia wrightii* Gris. and Wendl.)

Miraguano espinoso.

"*Paurotis* is a monotypic genus, inhabiting swamps and hammocks along the Chockoloskee River in southwestern Florida and Andros Island, Bahamas (where it is called *Spanish-top*), and it is frequent in Cuba." (*Britton, North American Trees, p. 141, 1908.*)

39292. Inodes blackburniana (Glazebrook) Cook.

Palma cana.

39293. Coccothrinax miraguama (H. B. K.) Beccari.

Yuraguana.

39294. Amaranthus viridis L. Amaranthaceæ.

From Chosenholme, Wonsen, Chosen (Korea). Presented by Mr. C. F. S. Bilbrough. Received September 14, 1914.

"*Byam,* used as a vegetable in Burma, boiled like spinach. I do not know if this is used or known in Europe." (*Bilbrough.*)

39295. Amygdalus microphylla H. B. K. Amygdalaceæ.
(*Prunus microphylla* Hemsl.)

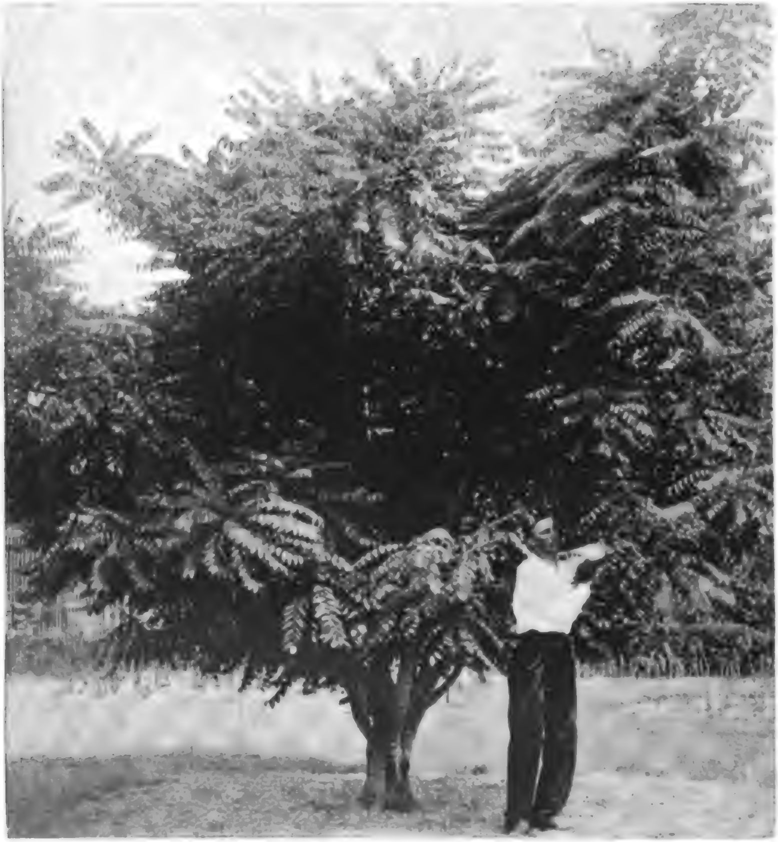
From Zacuapam, Huatusco, Vera Cruz, Mexico. Presented by Mr. C. A. Purpus. Received September 15, 1914.

"From a shrub loaded with ripe fruits. I have opened several and found the kernels sound as an apple, which is a great exception." (*Purpus.*)

39296. Cereus sp. Cactaceæ. **Pitahaya.**

From Guatemala City, Guatemala. Presented by Mr. S. Billow. Plants received September 25, 1914.

"The fruiting season is now over." (*Billow.*)



Tree of Phyllanthus acida (L.) Skeels, Growing in Florida. (See S. P. I. No. 39261.)

This tree stands on the place of C. B. Douglas at Miami, Fla. The clustering of the shoots at the end of the branches gives it the appearance of having pinnately compound leaves. The leaves are in reality simple and alternate. The tree is an attractive ornamental in Florida, aside from the fact that it produces large quantities of peculiarly acid fruits. (Photographed by Wilson Popenoe, June 23, 1915; P16366FS.)

FRUIT AND FOLIAGE OF PHYLLANTHUS ACIDA (L.) SKEELS, AS GROWN IN FLORIDA. (SEE S. P. I. NO. 39261.)

A close view of the fruit on the tree shown in Plate IX. The fruit is pale green, round, ribbed, and very acid, with a single hard seed in the center. When cooked with sugar this fruit is said make an excellent preserve. Its prodigious bearing capacity would seem to entitle it to more serious attention than it appears to have been given in Florida. This fruit is also known as *Phyllanthus distichus* and *Cicca disticha*. (Photographed by Wilson Popenoe, Miami, Fla., June 23, 1915; P16367FS.)

39297. ANNONA CHERIMOLA Miller. Annonaceæ. Cherimoya.

From Bogota, Colombia. Presented by Capt. H. R. Lemly, U. S. Army, retired. Received September 19, 1914.

39298 to 39302.

From Salisbury, Rhodesia. Presented by Mr. H. Godfrey Mundy, Government Agriculturist and Botanist, Department of Agriculture. Received September 21, 1914. Quoted notes by Mr. Mundy, except as otherwise indicated.

39298. SECURIDACA LONGIPEDUNCULATA Fresenius. Polygalaceæ.

"The Rhodesian violet tree."

"A much-branched shrub 8 to 10 feet high with violet flowers in terminal racemes, found in Abyssinia, the Mozambique district, and in Upper and Lower Guinea. The bark of this plant affords the *Buaze* fiber of Zambesiland." (*Oliver, Flora of Tropical Africa, vol. 1, p. 134, 1868.*)

39299. VIGNA SINENSIS (Torner) Savi. Fabaceæ. Cowpea.

"Grown by the natives here."

39300. BOLUSANTHUS SPECIOSUS (Bolus) Harms. Fabaceæ. (*Lonchocarpus speciosus* Bolus.) Wistaria tree.

See S. P. I. No. 21808 for previous introduction.

39301. CLITORIA TERNATEA L. Fabaceæ.

"A blue-flowering creeper, indigenous to India."

39302. THUNBERGIA sp. Acanthaceæ.

"A very handsome blue-flowering native Thunbergia, also a creeper."

39303. NICOTIANA TABACUM L. Solanaceæ. Tobacco.

From Guatemala City, Guatemala. Presented by Mr. S. Billow. Received September 17, 1914.

"A short time ago I noticed several plants growing in a little park near this city. I secured some of the seed. I questioned the gardener in charge about how the plants came there and he said they were volunteers; one of the laborers stated he used the leaf for smoking, and it was very strong. As far as I can tell there was no plant disease, but I noticed a large number of green insects which attacked the leaves." (*Billow.*)

39304 to 39308.

From Ogbomosho, Nigeria. Presented by Rev. George Green, M. D., Southern Baptist Mission. Received September 14, 1914.

39304. PHASEOLUS sp. Fabaceæ.

"Bean, grows on vines, native of Nigeria, West Africa." (*Green.*)

39305. PHASEOLUS LUNATUS L. Fabaceæ. Butter bean.

Native (?).

39306. VIGNA SINENSIS (Torner) Savi. Fabaceæ. Cowpea.

Native black-eye pea.

39307 and 39308. HOLCUS SORGHUM L. Poaceæ. Sorghum. (*Sorghum vulgare* Pers.)

INDEX OF COMMON AND SCIENTIFIC NAMES.

Abacaxi, *Ananas sativus*, 38908.
Abies spectabilis, 38733.
    webbiana. See *Abies spectabilis.*
Acacia catechu, 38991.
    retinodes, 38758.
Acer sp., 38843, 38992.
    hookeri, 38734.
Achras sapota. See *Achras zapota.*
    zapota, 38859.
Aconite, *Aconitum* spp., 38993, 38994.
Aconitum ferox, 38993.
    luridum, 38994.
Acrista monticola, 39188.
Aegle marmelos. See *Belou marmelos.*
Aeria attenuata, 39189.
Aesculus assamicus, 39102.
    punduana. See *Aesculus assamicus.*
Aipim Pacara, *Manihot esculenta*, 38948.
    Paraguay, *Manihot esculenta*, 38950.
    Varudo, *Manihot esculenta*, 38949.
Albizzia sp., 38820, 38995.
    chinensis, 38735, 39104.
    odoratissima, 38996, 39103.
    stipulata. See *Albizzia chinensis.*
Alder, *Alnus nepalensis*, 38997.
Aleurites fordii, 38671.
    moluccana, 38945, 38986.
    triloba. See *Aleurites moluccana.*
Alfalfa, *Medicago sativa:*
    (Argentina), 38864, 38865.
    (Chile), 38984.
    (Russia), 38852.
    (Sweden), 39157.
Allium cepa, 39263.
    schoenoprasum, 38787.
Alloteropsis eckloniana, 38766.
Alnus nepalensis, 38997.
Amaranth, *Amaranthus* spp., 39197, 39294.
Amaranthus gangeticus, 39197.
    viridis, 39294.
Amoora rohituka, 38998.
Amorphophallus giganteus, 39146.
Amygdalus microphylla, 39295.
    persica, 38676–38678, 38680–38683.
    persica nectarina, 38679.
Anacahuita, *Sterculia carthaginensis*, 39221.
Ananas sativus, 38908.
Andropogon erianthoides, 38765.
Anemone sp., 38841.
    rupicola, 38999.
Annona cherimola, 38675, 38694, 39297.
    muricata, 38762.
Apple, *Malus sylvestris*, 39145.
Apricot, *Prunus armeniaca:*
    (Italy), 38778, 38978.
    Pelese, 38778, 38978.
Aralia quinquefolia. See *Panax quinquefolium.*
Araucaria araucana, 38695.
Arbor vitæ, *Thuja orientalis*, 38797, 38798, 38831.
    Mien po, 38831.
Artocarpus integra, 38890.
Arundinaria hindsii, 38914.
    ragamowski, under 38915.
    simonii variegata, 38921.
Ash, *Fraxinus floribunda*, 39014, 39115.
Asparagus sp., 38840.
Avena sativa, 38693.
Avocado, *Persea americana:*
    (California), 38888.
    (Mexico), 39164, 39173.
    Murrieta, 38888.
Aweoweo taro, *Colocasia esculenta*, 38847.

Bael, *Belou marmelos*, 38763, 38975, 38976.
Balanites maughamii, 39196.

Balsam of Peru, *Toluifera pereirae*, 38977.
Balsamito, *Toluifera pereirae*, 38977.
Balsamo blanco, *Toluifera pereirae*, 38977.
Bamboo, *Arundinaria* spp.; *Bambos* spp.; *Phyllostachys* spp.:
  (Brazil), 38909–38922.
  Dendrocalamus hamiltonii, 38736, 39178.
  (India), 38736, 39154, 39178.
  Marliac's, 38920.
  Sasa tessellata, 38915.
Bambos sp., 38909–38911, 38916, 38917, 38922, 39154.
  aurea-striata, 38918.
  erecta. See *Arundinaria hindsii*.
Bambusa albo-striata. See *Arundinaria simonii variegata*.
  tessellata. See *Sasa tessellata*.
Banana, *Musa paradisiaca sapientum*, 38923–38927.
  Anã, 38923.
  (Brazil), 38923–38927.
  d'Agua, 38923.
  Maçã, 38924.
  Maranhão, 38927.
  Prata, 38925.
  Poucos e Boas, 38927.
  São Thomáz, 38926.
Banyan tree, *Ficus bengalensis*, 39113.
Barberry. See *Berberis* spp.
Barley, *Hordeum* spp.:
  (China), 38780.
  Early Black Turkestan, 38887.
  Late Black Turkestan, 38886.
  (Mexico), 38885–38887.
  Orze, 39192.
  (Peru), 39149–39151.
  (Russia), 38688.
  Sxir, 39192.
  (Tripoli), 39192.
  White Turkestan, 38885.
Bassia latifolia. See *Madhuca indica*.
  longifolia. See *Madhuca longifolia*.
Bauhinia purpurea, 39000.
Bean, *Phaseolus* sp., 39304.
  butter, *Phaseolus lunatus*, 39305.
  Juga, *Voandzeia subterranea*, 38985.
  Tonka, *Coumarouna odorata*, 39142.
Beet, *Beta vulgaris*, 38883.
Belou marmelos, 38763, 38975, 38976.
Benise seed, *Sesamum orientale*, 39171.
Berberis sp, 38811, 39001.
  nepalensis, 39105.
Beta vulgaris, 38883.
Betula cylindrostachya, 39002.
Birch, *Betula cylindrostachya*, 39002.
Bittersweet, *Celastrus angulatus*, 38836.
Bluffia eckloniana. See *Alloteropsis eckloniana*.
Bolusanthus speciosus, 39300.
Boschniakia himalaica, 39003.
Box, *Eucalyptus bicolor*, 38710.
  bastard, 38710.
  black, 38710.
  red, 38722.
  yellow, 38710.
Brachychiton acerifolium, 38979.
  luridum, 38980.
Brassica alba, 38689.
  napiformis, 38783.
  pekinensis, 38782.
Bread-nut tree, *Piratinera alicastrum*, 38668.
Brosimum alicastrum. See *Piratinera alicastrum*.
Burra murra, *Syncarpia glomulifera*, 38731.
Bush cherry, *Prunus tomentosa*, 38856.
Butterfly pea, *Clitoria ternatea*, 38987.
Byam, *Amaranthus viridis*, 39294.

Cabbage, Chinese, *Brassica pekinensis*, 38782.
  turnip-rooted, Chinese, *Brassica napiformis*, 38783.
Caesalpinia bonducella. See *Guilandina bonduc*.
Calabasse d'Amerique, *Kigelia pinnata*, 38698.
Calathea lutea, 39190.
Cape-gooseberry, *Physalis peruviana*, 39179.
Capim Angolinha, *Eriochloa subglabra*, 38892.
  cayana, *Panicum* sp., 38946.
Capsicum annuum, 38788.
Cardinal's-cap. See *Euonymus* sp.
Caragana sp., 38824.
Carica quercifolia, 38850.
Carrot, *Daucus carota*, 38786.
  Hung t'iao lo po, 38786.

Cassava, *Manihot esculenta:*
  Aipim Pacara, 38948.
    Paraguay, 38950.
    Varudo, 38949.
  Aparecida, 38952.
  Babu Branca, 38960.
  Babu Preto, 38962.
  (Brazil), 38947–38968.
  Concepcion, 38861.
  Crioulinho, 38965.
  Gamadura, 38951.
  Gravatão, 38968.
  Itaparica, 38966.
  Itapicuru, 38956.
  Landy, 38953.
  Mandio Yeruti. See under 38857.
  Mandio Concepcion. See under 38857.
  Mangue, 38967.
  Milagrosa, 38958.
  Mulatinho, 38947.
  (Paraguay), 38861.
  Prato Cheio, 38955.
  Rio de Janeiro, 38964.
  São Pedro Branca, 38959.
  Saracura, 38957.
  Tutano, 38963.
  Vassoura, 38954.
  Vassoura Molle, 38961.
  Yeruti, 38857.
Castor bean, *Ricinus communis*, 39156.
Catechu, *Acacia catechu*, 38991.
Cedar, East African, *Juniperus procera*, 39185.
Cedrela sinensis. See *Toona sinensis*.
Celastrus angulatus, 38836.
Celtis sinensis, 38822.
Cerastium sp., 39004.
Cereus sp., 39296.
Chaenomeles lagenaria cathayensis, 38795.
Chaerophyllum villosum, 39005.
Chaetochloa aurea, 38773.
  italica, 39283–39285.
  lindenbergiana, 38774.
  nigrirostris, 38775.
  sulcata, 38776.
Ch'ang la chiao, *Capsicum annuum*, 38788.
Cherimoya, *Annona cherimola:*
  (Australia), 38675.
  (Colombia), 39297.
  (Mexico), 38694.
Cherry, black, *Prunus salicifolia*, 38684.
  bush, *Prunus tomentosa*, 38856.
  (China), 38856.
  (India), 39121.
  (Italy), 39175.
  Marasca grossa di Firenze, *Prunus avium*, 39175.
  (Peru), 38684.
  Sargent's, *Prunus serrulata sachalinensis*, 38761.
  Suan t'ao, *Prunus tomentosa*, 38856.
  Suan ying t'ao, *Prunus tomentosa*, 38856.
Chili pepper, *Capsicum annuum*, 38788.
Chiu ts'ai tzŭ, *Allium schoenoprasum*, 38787.
Chives, *Allium schoenoprasum*, 38787.
  Chiu ts'ai tzŭ, 38787.
Chloris virgata, 39177.
Chrysanthemum atkinsoni, 39006.
Citrus, sp., 38932, 38938–38940.
  angulatus. See *Merope angulata*.
  limetta, 38931, 38933.
  nobilis deliciosa, 38941, 38942.
  sinensis, 38928–38930, 38934–38937.
Claucena lansium, 38708, 39176.
Clausena wampi. See *Claucena lansium*.
Clematis sp., 38818.
  montana, 39007.
  zeylanica, 39027.
Clitoria ternatea, 38987, 39301.
Clover, *Trifolium subterraneum*, 38983.
Coccothrinax miraguama, 39293.
Cocculus sp., 38838.
Coix lacryma-jobi, 38876, 38880, 39286.
  lacryma-jobi gigantea, 38868, 38869.
    ma-yuen, 38871–38874, 38877–38879.
    stenocarpa, 38870, 38875.
Colocasia esculenta, 38756, 38847–38849.
Cooburn, *Eucalyptus bicolor*, 38710.
Copernicia glabrescens, 39219, 39289.
  hospita, 39288, 39290.
  macroglossa, 39287.
  wrightii. See *Paurotis wrightii*.
Corn, *Zea mays:*
  (China), 38789–38792, 39158–39162.
  Cinquantino, 38690, 38691.

Corn—Continued.
  Hui yü mi, 38790.
  Perl, 38691.
  (Peru), 39228–39260.
  (Russia), 38690, 38691.
  Tsa jih pên yü mi, 38792.
  Tzŭ yü mi, 38791.
  Wu yüeh hsien yü mi, 38789.
Corylus ferox, 39106.
Cotoneaster frigida, 38760.
  microphylla, 39008.
Cotton, *Gossypium* spp.:
  Kidney, 39153.
  Mit Afifi, 39147.
  (Northern Nigeria), 39172.
  (Peru), 39147.
  (Philippine Islands), 39153.
Coumarouna odorata, 39142.
Cowpea, *Vigna sinensis*, 39143, 39299, 39306.
Cracca candida, 39107.
Crataegus sp., 38844.
  pinnatifida, 38796.
Cremanthodium oblongatum, 39009.
Cucurbita pepo, 38884.
Cu-mot-tu-nhien, *Stephania rotunda*, 39084.

Daucus carota, 38786.
Dendrocalamus hamiltonii, 38736, 39178.
Desmodium floribundum. See *Meibomia floribunda*.
  tiliaefolium. See *Meibomia tiliaefolia*.
Dicentra thalictrifolia, 39108.
Dillenia pentagyna, 39109.
Diospyros kaki, 38793.
  macrophylla, 39174.
Dipteryx odorata. See *Coumarouna odorata*.

Elaeocarpus sikkimensis, 39110.
Elsholtzia stauntoni, 38819.
Emmer, *Triticum dicoccum*, 39227.
Eragrostis curvula, 38767.
  poa, 38768.
Erianthus fulvus. See *E. rufipilus*.
  rufipilus, 39010.
Erigeron multiradiatus, 39012.
Eriobotrya petiolata, 39111.
Eriochloa subglabra, 38892.
Erythrina arborescens, 39013, 39112.
Escallonia pterocladon, 38759.
Eucalyptus alpina, 38709.
  amygdalina, 38723.
  bicolor, 38710.
  citriodora, 38711.
  cladocalyx, 38713.
  corynocalyx. See *Eucalyptus cladocalyx*.
  globulus, 38715.
  gomphocephala, 38717.
  goniocalyx, 38716.
  leucoxylon, 38718.
  longirostris, 38725.
  macrorhyncha, 38719.
  muelleriana, 38730.
  obliqua, 38720.
  pauciflora, 38712.
  piperita, 38721.
  polyanthemos, 38722.
  resinifera, 38724.
  rostrata. See *Eucalyptus longirostris*.
  sideroxylon, 38726.
  tereticornis, 38728.
  viminalis, 38714, 38729.
  virgata, 38727.
Euonymus sp., 38833–38835.
Exochorda grandiflora. See *Exochorda racemosa*.
  racemosa, 38817.

Fan palm, *Livistona muelleri*, 38667.
Feijoa macrocarpa. See under 38970.
  sellowiana, 38970.
Feronia lucida. See *Feroniella lucida*.
Feroniella lucida, 38860.
Ficus bengalensis, 39113.
  hookeri, 39114.
Fingerhuthia africana, 38769.
Fir, *Abies spectabilis*, 38733.
Flame tree, *Brachychiton acerifolium*, 38979.
Flax, *Linum* spp., 38971–38973.
Fraxinus floribunda, 39014, 39115.

Garri, *Cotoneaster microphylla*, 39008.
Garugandra amorphoides. See *Gleditsia amorphoides*.
Gaultheria nummularioides, 39015.
Gentian, *Gentiana tubiflora*, 39016.
Gentiana tubiflora, 39016.
Geranium, *Pelargonium* sp., 39195.
Gerbera kunzeana, 39017.

Ginseng, *Panax quinquefolium*, 38742–38751.
  (China), 38742–38751.
Gleditsia amorphoides, 38851.
  sinensis, 38800–38802.
Glycine hispida. See *Soja max*.
Gossypium sp., 39153, 39172.
  barbadense, 39147.
Gourd, *Trichosanthes kirilowii*, 38842.
Grape, *Vitis tiliaefolia*, 38853.
  (Cuba), 38853.
Grass, *Alloteropsis eckloniana*, 38766.
  Australian Rhodes, *Chloris virgata*, 39177.
  Capim Angolinha, 38892.
    cayana, 38946.
  Eragrostis curvula, 38767.
  Eragrostis poa, 38768.
  Fingerhuthia africana, 38769.
  Ischaemum glaucostachyum, 38770.
  Johnson, 38670.
  M'fufu, *Pennisetum macrourum*, 39167.
  Napier's fodder, *Pennisetum schimperi*, 39166.
  Satin-top, *Andropogon erianthoides*, 38765.
Grosella, *Phyllanthus acida*, 39261.
Guanábana, *Annona muricata*, 38762.
Guano espinoso, *Copernicia hospita*, 39290.
  hediondo, *Copernicia hospita*, 39288.
Guapinol, *Hymenaea courbaril*, 38862.
Guava, *Psidium cattleianum*, 38757.
  Psidium araça, 38944.
  (Brazil), 38944.
  (California), 38757.
Guilandina bonduc, 38891.
Guinea corn, *Holcus sorghum*, 39170.
  grass, *Panicum maximum*, 38771.
Gum, alpine, *Eucalyptus alpina*, 38709.
  blue, *Eucalyptus globulus*, 38715.
  flooded, *Eucalyptus tereticornis*, 38728.
  gray, *Eucalyptus bicolor*, 38710.
  lemon scented, *Eucalyptus citriodora*, 38711.
  manna, *Eucalyptus viminalis*, 38714, 38729.
  mountain spotted, *Eucalyptus goniocalyx*, 38716.
Gum—Continued.
  peppermint, *Eucalyptus amygdalina*, 38723.
  red, *Eucalyptus longirostris*, 38725.
  spotted, *Eucalyptus goniocalyx*, 38716.
  slaty, *Eucalyptus bicolor*, 38710.
  sugar, *Eucalyptus cladocalyx*, 38713.
  white, *Eucalyptus pauciflora*, 38712.
Gynura angulosa, 39018.
  nepalensis, 39116.

Hackberry, *Celtis sinensis*, 38822.
Handjeli, *Coix lacryma-jobi*, 39286.
Hat palm, *Copernicia glabrescens*, 39219, 39289.
Hat tree, *Brachychiton luridum*, 38980.
Hawthorn, *Crataegus* spp., 38796, 38844.
Hibiscus radiatus, 38666.
Holcus halepensis, 38670.
  sorghum, 39170, 39184, 39264–39282, 39307, 39308.
  sorghum verticilliflorus, 38866.
Honeysuckle. See *Lonicera* spp.
Hordeum distichon nutans, 38688.
  vulgare, 38780, 39149–39151, 39192.
    nigrum, 38886, 38887.
    pallidum, 38885.
Hsiang ch'un shu, *Toona sinensis*, 38805.
  tsao, *Ziziphus jujuba*, 39194.
  ya tsao chio, *Gleditsia sinensis*, 38802.
Hsüeh po, *Juniperus chinensis*, 38803.
Hui yü mi, *Zea mays*, 38790.
Hung t'iao lo po, *Daucus carota*, 38786.
Hydrangea bretschneideri, 38812.
Hymenaea courbaril, 38862.
Hymenodictyon excelsum, 39094.
Hyophorbe amaricaulis, 38697.
Hypericum cernuum. See *Hypericum oblongifolium*.
  oblongifolium, 39117.
  patulum, 39118.

Ilex paraguariensis, 38858.
Imboomba, *Vigna sinensis*, 39143.
Indigofera dosua, 39119.
Inodes blackburniana, 39292.
Iris clarkei, 39019.

Ironbark, red, *Eucalyptus sideroxylon*, 38726.
  white, *Eucalyptus leucoxylon*, 38718.
Ischaemum glaucostachyum, 38770.

Jack fruit, *Artocarpus integra*, 38890.
Jasmine, *Jasminum* spp.:
  (China), 38826.
  (India), 39120.
Jasminum sp., 38826.
  humile, 39120.
Jata, *Copernicia macroglossa*, 39287.
Job's-tears, *Coix lacryma-jobi*, 38868–38880, 39286.
Johnson grass, *Holcus halepensis*, 38670.
Juga bean, *Voandzeia subterranea*, 38985.
Jujube, *Ziziphus jujuba*, 39194.
  Hsiang tsao, 39194.
  Ta yuan tsao, 39194.
Juncus grisebachii, 39020.
Juniper, *Juniperus* spp.
  Hsüeh po, 38803.
Juniperus chinensis, 38803, 38804.
  procera, 39185.

Kai koi o Ewa, *Colocasia esculenta*, 38756.
Kala-siris, *Albizzia chinensis*, 38735.
Keokeo taro, *Colocasia esculenta*, 38848.
Khariz lūni, *Cotoneaster microphylla*, 39008.
Kigelia pinnata, 38698.
Kino eucalypt, *Eucalyptus resinifera*, 38724.
Kitjallung, *Diospyros macrophylla*, 39174.
Kolkwitzia amabilis, 38832.
Kua lü, *Trichosanthes kirilowii*, 38842.
Kuruba amarilla, *Passiflora maliformis*, 38881, 39223, 39224.
  indio, *Passiflora maliformis*, 38882.
  red, *Passiflora maliformis*, 39225, 39226.

Lactuca sativa, 38988.
Lal-sag, *Amaranthus gangeticus*, 39197.
Laranja africana, *Citrus* sp., 38938.
  cravo, *Citrus nobilis deliciosa*, 38942.
Laranja—Continued.
  lima, *Citrus* sp., 38932.
  selecta, *Citrus sinensis*, 38936.
  selecta de umbigo, *Citrus sinensis*, 38928.
  tanja, *Citrus* sp., 38939.
Laurocerasus acuminata, 39121.
Lemon, sweet, *Citrus* sp., 38940.
Lespedeza sp., 38808, 38809.
Lettuce, *Lactuca sativa*, 38988.
Ligustrum quihoui, 38807.
Lilac, *Syringa* spp.
Lima doce, *Citrus limetta*, 38931.
Limão doce, *Citrus* sp., 38940.
Lime (Brazil), 38931, 38933.
  sweet, *Citrus limetta*, 38931, 38933.
Lime orange, *Citrus* sp., 38932.
Linden, *Tilia mongolica*, 38810.
  Mi tuan shu, 38810.
Linoma alba, 38696.
Linum grandiflorum var. *rubrum*, 38972.
  perenne var. *album*, 38971.
  usitatissimum, 38973.
Litchi chinensis, 38779.
Livistona muelleri, 38667.
Llume palm, *Aeria attenuata*, 39189.
Lonchocarpus speciosus. See *Bolusanthus speciosus*.
Lonicera sp., 38815, 38816.
  periclymenum, 38814.
Lubi lubi, *Osmelia* sp. (?), 38764.
Lucerne, Blå, *Medicago sativa*, 39157.
Lumbang, *Aleurites moluccana*, 38945, 38986.
Lupine, *Lupinus pilosus*, 39198.
Lupinus pilosus, 39198.

Macadamia ternifolia, 39144.
Machewere, *Pennisetum glaucum*, 38669.
Madhuca indica, 39182.
  longifolia, 39183.
Mahogany, red, *Eucalyptus resinifera*, 38724.
Mahwa, *Madhuca* spp., 39182, 39183.
Mallotus sp., 39021.
  nepalensis, 39122.
Malus sylvestris, 39145.
Mandioca, *Manihot esculenta*, 38857, 38861, 38947–38968.
Mangifera indica, 38981, 38982, 39155.

Mango, *Mangifera indica*, 38981, 38982, 39155.
(Cuba), 38981, 38982.
(Liberia), 39155.
Luisa, 38981.
Manihot esculenta, 38857, 38861, 38947–38968.
utilissima. See *Manihot esculenta*.
Maple, *Acer* spp., 38734, 38843, 38992.
Meconopsis wallichii, 39022.
Medicago sativa, 38852, 38864, 38865, 38984, 39157.
Meibomia floribunda, 39123.
tiliaefolia, 39023, 39124.
Melilotus parviflora, 38864, 38865.
Merope angulata, 39168.
M'fufu grass, *Pennisetum macrourum*, 39167.
Mi tuan shu, *Tilia mongolica*, 38810.
Michelia sp., 39025.
cathcartii, 39125.
lanuginosa, 39024.
Mien po, *Thuja orientalis*, 38831.
Millet, *Chaetochloa italica*, 39283–39285.
(Belgian Congo), 38732.
Djawawoet, 39284.
(Java), 39283–39285.
Koenjit boentoet koetjing, 39283.
Koenjit ramo koetjing, 39285.
Machewere, 38669.
(Nyassaland), 38669.
pearl, *Pennisetum glaucum*, 38669, 38732.
Miraguano espinoso, *Paurotis wrightii*, 39291.
Monachne subglabra. See *Eriochloa subglabra*.
Mountain sorrel, *Oxyria digyna*, 39029.
Morus sp., 39096.
Mucuna sp., 39026.
Musa paradisiaca sapientum, 38923–38927.
Mustard, yellow, *Brassica alba*, 38689.
Myroxylon pereirae. See *Toluifera pereirae*.

Napier's fodder grass, *Pennisetum schimperi*, 39166.
Naravelia zeylanica. See *Clematis zeylanica*.
Navel orange, *Citrus sinensis*, 38928–38930, 38934, 38935.
Nectarine, *Amygdalus persica nectarina*, 38679.
Nephelium litchi. See *Litchi chinensis*.
Nicandra physaloides. See *Pentagonia physalodes*.
Nicotiana tabacum, 39163, 39303.
Nyssa sessiliflora, 38737.

Oak, *Quercus* sp., 38738.
Oats, *Avena sativa*, 38693.
Ochroma lagopus, 38854.
Onion, *Allium cepa*, 39263.
Ophiopogon intermedius, 39028.
japonicus, 38781, 38839.
Opuntia sp., 38705.
cafayatensis, 38702.
camuessa, 38703.
decumana, 38701.
ficus-indica costaricensis, 38700.
gymnocarpa, 38702, 38706.
robusta larreyi, 38704.
spinulifera, 38699.
streptacantha, 38707.
Orange (Brazil), 38928–38930, 38932, 38934–38937.
laranja lima, 38932.
laranja selecta, 38936.
laranja selecta de umbigo, 38928.
lime, 38932.
navel, *Citrus sinensis*, 38928–38930, 38934, 38935.
Orchid tree, *Bauhinia purpurea*, 39000.
Oryza sativa, 38685, 38686, 38752–38755, 38845, 38846, 38867, 39148, 39199–39218.
Osbeckia stellata, 39126.
Osmelia sp. (?), 38764.
Oxyria digyna, 39029.
Oxyspora paniculata, 39093.

Paederia foetida, 38837.
Pai ts'ai, *Brassica pekinensis*, 38782.
Palm, *Acrista monticola*, 39188.
Aeria attenuata, 39189.
(Australia), 38667.
Coccothrinax miraguama, 39293.
Copernicia glabrescens, 39219, 39289.
Copernicia hospita, 39288, 39290.
(Cuba), 39219, 39287–39293.
Fan, *Livistona muelleri*, 38667.
Guano espinoso, *Copernicia hospita*, 39290.

- Palm—Continued.
  - Guano hediondo, *Copernicia hospita*, 39288.
  - hat, *Copernicia glabrescens*, 39219, 39289.
  - *Hyophorbe amaricaulis*, 38697.
  - (India), 38739, 39140.
  - *Inodes blackburniana*, 39292.
  - Jata, *Copernicia macroglossa*, 39287.
  - *Linoma alba*, 38696.
  - Mascarene cabbage, 38696.
  - Llume, *Acria attenuata*, 39189.
  - (Mauritius), 38672, 38673, 38696, 38697.
  - Miraguano espinoso, *Paurotis wrightii*, 39291.
  - Palma cana, *Inodes blackburniana*, 39292.
  - *Paurotis wrightii*, 39291.
  - *Phoenicophorium borsigianum*, 38673.
  - (Porto Rico), 39188, 39189.
  - *Roscheria melanochoetes*, 38672.
  - *Trachycarpus martiana*, 38739, 39140.
  - Yarey, 39219, 39289.
  - Yuraguana, *Coccothrinax miraguama*, 39293.
- Palma cana, *Inodes blackburniana*, 39292.
- Palma de Sierra, *Acrista monticola*, 39188.
- Pampano, *Calathea lutea*, 39190.
- *Panax quinquefolium*, 38742–38751.
- *Panicum* sp. (?), 38946.
  - *maximum*, 38771.
  - *nigropedatum*, 38772.
- *Parnassia* sp., 39030.
- *Passiflora foetida*, 38989.
  - *maliformis*, 38881, 38882, 39223–39226.
- Passion fruit, *Passiflora* spp.:
  - kuruba amarilla, 38881, 39223, 39224.
  - kuruba indio, 38882.
- *Paulownia fortunei*, 38806.
- *Paurotis wrightii*, 39291.
- Pea, butterfly, *Clitoria ternatea*, 38987.
- Peach, *Amygdalus persica*.
  - Doncietitas, 38677.
  - (Peru), 38676–38678, 38680–38683.
- Pear, *Pyrus* sp., 38799.
  - *Pyrus chinensis*, 38794.
  - (China), 38794.
  - T'ang li, 38799.
- *Pedicularis clarkei*, 39031.
  - *flexuosa*, 39032.
  - *lachnoglossa*, 39033.
  - *longiflora*, 39034.
  - *megalantha*, 39035.
  - *mollis*, 39036.
  - *schizorrhyncha*, 39037.
- Pehuen, *Araucaria araucana*, 38695.
- *Pelargonium* sp., 39195.
- *Pennisetum glaucum*, 38669, 38732.
  - *macrourum*, 39167.
  - *schimperi*, 39166.
  - *typhoideum*. See *Pennisetum glaucum*.
- *Pentagonia physalodes*, 39038.
- Pepper, red, *Capsicum annuum*, 38788.
  - Ch'ang la chiao, 38788.
- Pepper bush, Chinese, *Zanthoxylum alatum*, 38825.
- *Pereskia portulacifolia*, 39220.
- *Persea americana*, 38888, 39164, 39173.
  - *gratissima*. See *Persea americana*.
- Persimmon, *Diospyros* spp.:
  - (China), 38793.
  - (Java), 39174.
- Pe-tsai, *Brassica pekinensis*, 38782.
- *Phaseolus* sp., 39304.
  - *lunatus*, 39305.
- *Phoenicophorium borsigianum*, 38673.
- *Photinia integrifolia*, 39039.
- *Phyllanthus acida*, 39261.
  - *distichus*. See *Phyllanthus acida*.
- *Phyllostachys aurea*, 38919.
  - *bambusoides marliacea*, 38920.
  - *marliacea*. See *Phyllostachys bambusoides marliacea*.
  - *nigra*. See *Phyllostachys puberula nigra*.
  - *puberula nigra*, 38913.
  - *quilioi marliacea*. See *Phyllostachys bambusoides marliacea*.
  - *sulfurea*, 38912.
  - *viridi-glaucescens*, under 38920.
- *Physalis peruviana*, 39179.
- *Picea morinda*. See *Picea smithiana*.
  - *smithiana*, 39040.
- *Picrorhiza kurroa*, 39041.
- *Pieris villosa*, 39127.

Pineapple, *Ananas sativus*, 38908.
Piptadenia oudhensis, 39042.
Piptanthus nepalensis, 39043, 39128.
Piratinera alicastrum, 38668.
Pitahaya, *Cereus* sp., 39296.
Pittosporum floribundum, 39044, 39129.
Plagianthus betulinus, 38969.
Pleurospermum apiolens, 39045.
  brunonis, 39046.
  hookeri, 39047.
Plum, *Prunus umbellata*, 38974.
Pollinia cumingiana. See *Pollinia fulva*.
  fulva, 39011.
Polygonum vaccinifolium, 39048.
Potato, *Solanum tuberosum*, 38777.
Poupartia axillaris, 39083, 39136.
  fordii. See *Poupartia axillaris*.
Prickly-pear, *Opuntia* spp., 38699–38707.
Privet, *Ligustrum quihoui*, 38807.
  Tung ch'ing chih, 38807.
Prunus acuminata. See *Laurocerasus acuminata*.
  armeniaca, 38778, 38978.
  avium, 39175.
  microphylla. See *Amygdalus microphylla*.
  persica. See *Amygdalus persica*.
  salicifolia, 38684.
  sargentii. See *Prunus serrulata sachalinensis*.
  serrulata sachalinensis, 38761.
  tomentosa, 38856.
  umbellata, 38974.
Psidium araça, 38944.
  cattleianum var. *lucidum*, 38757.
Pumpkin, *Cucurbita pepo*, 38884.
Pyrus sp., 38799.
  cathayensis. See *Chaenomeles lagenaria cathayensis*.
  chinensis, 38794.
  insignis. See *Sorbus insignis*.
  microphylla. See *Sorbus microphylla*.
  vestita. See *Sorbus cuspidata*.

Queensland nut, *Macadamia ternifolia*, 39144.
Quercus sp., 38738.
Quince, *Chaenomeles lagenaria cathayensis*, 38795.

Radish, *Raphanus sativus*, 38784, 38785.
  Chinese early summer, 38785.
  Chinese winter, 38784.
  T'ieh hung tan lo po, 38784.
  Yeh chi hung shui lo po, 38785.
Raphanus sativus, 38784, 38785.
Raspberry, *Rubus* spp.
  (India), 39130–39132, 39169.
  (Mauritius), 39187.
  Yellow fruited, 39187.
Rheum acuminatum, 39049.
  nobile, 39050.
Rhodes grass, Australian, *Chloris virgata*, 39177.
Rhodesian violet tree, *Securidaca longipedunculata*, 39298.
Rhododendron anthopogon, 39051.
  arboreum, 39052, 39054.
  arboreum campbelliae, 39053.
  barbatum, 39055.
  camelliaeflorum, 39056.
  campanulatum, 39057.
  campylocarpum, 39058.
  ciliatum, 39059.
  cinnabarinum. See *Rhododendron roylei*.
  dalhousiae, 39061.
  falconeri, 39062.
  fulgens, 39063.
  grande, 39064.
  lanatum, 39065.
  lepidotum, 39066.
  roylei, 39060.
  setosum, 39067.
  wightii, 39068.
Rhubarb. See *Rheum* spp.
Ribbon wood, *Plagianthus betulinus*, 38969.
Rice, *Oryza sativa*:
  Amonquili, 38845.
  Balidjembel, 39204.
  Baök, 39211.
  Benlloch, 38685, 38686, 38846.
  Berod, 39199.
  Carolina, 39148, 39210.
  Dhundhari, 38753.
  Dyalen, 39205.
  Glindoeran, 39202.
  Gonde, 39218.
  (India), 38752–38755.
  (Java), 39199–39218.
  Kalojira, 38752.

Rice—Continued.
  Kamod, 38755.
  Kawoeng, 39203.
  Kowel, 39208.
  Laradjawi, 39206.
  Mamas, 39207.
  Menoer, 39209.
  Molok, 39213.
  Nakerijea, 38754.
  Osog, 39217.
  Pandan, 39201.
  Pelak, 39200.
  (Peru), 39148.
  Rogol, 39215.
  Saloniki, 38867.
  Sarilaia, 39212.
  Solo, 39214.
  (Spain), 38685, 38686, 38845, 38846.
  (Turkey), 38867.
  Walen, 39216.
Ricinus communis, 39156.
Rollinia mucosa, 38674.
  sieberi. See *Rollinia mucosa*.
Rosa sp., 38821.
  abyssinica, 39180.
  multiflora cathayensis, 38823.
Rose. See *Rosa* spp.
Roscheria melanochoetes, 38672.
Rubus sp., 39069, 39180, 39181.
  ellipticus, 39169.
  niveus Thunb., 39130.
  niveus Wall. See *Rubus pedunculosus*.
  paniculatus, 39132.
  pedunculosus, 39131.
  rosaefolius, 39187.
Rye, *Secale cereale*, 38692.
  (Russia), 38692.

Saccharum officinarum, 38893–38907, 39165.
  × *ciliare*, 39262.
Salix sp., 39071, 39191.
  tetrasperma, 39070.
Sapodilla, *Achras zapota*, 38859.
Sasa tessellata, 38915.
Sau, *Albizzia chinensis*, 38735.
Sausage tree, *Kigelia pinnata*, 38698.
Saussurea sp., 39073.
  deltoidea, 39072.
Saxifraga sp., 38855.
  purpurascens, 39074.
Saxifrage. See *Saxifraga* spp.
Secale cereale, 38692.
Securidaca longipedunculata, 39298.
Sedum asiaticum, 39075.
  roseum, 39076.
Selinum tenuifolium, 39077.
Senecio sp., 39081.
  densiflorus. See *Senecio uncinellus*.
  diversifolius. See *Senecio raphanifolius*.
  raphanifolius, 39079.
  scandens, 39080.
  uncinellus, 39078.
Sesame, *Sesamum orientale*, 39171.
Sesamum indicum. See *Sesamum orientale*.
  orientale, 39171.
Setaria aurea. See *Chaetochloa aurea*.
  italica. See *Chaetochloa italica*.
  lindenbergiana. See *Chaetochloa lindenbergiana*.
  nigrirostris. See *Chaetochloa nigrirostris*.
  sulcata. See *Chaetochloa sulcata*.
Silk-flower tree, *Albizzia* sp., 38820.
Smilax vaginata, 38827.
Soap bean, *Gleditsia sinensis*, 38800–38802.
  Hsiang ya tsao chio, 38802.
  Tsao chio, 38800.
Soja max, 38990.
Solanum tuberosum, 38777.
Sorbus cuspidata, 39133.
  insignis, 39082, 39134.
  microphylla, 39135.
Sorghum, *Holcus* spp.:
  (Brazil), 38670.
  Gandroem djebrag, 39269.
  Gandroeng, 39267, 39274.
    beureum, 39279.
    boerajot, 39278.
    degem, 39280.
    djabag, 39281.
    goeweup, 39273.
    keupeul, 39264.
    koempaj beureum, 39282.
    sekoel, 39275.
    tarigoe, 39268.
    titinggi, 39277.
    tjinde, 39270.
  Guinea corn, 39170.

Sorghum—Continued.
(Java), 39264–39282.
(Nigeria), 39170, 39307, 39308.
Padimekah, 39268.
(Seychelles Islands), 39184.
Tjantel, 39265, 39276.
item, 39271.
oetjir, 39266.
tjondro, 39272.
(Union of South Africa), 38866.
Sorghum vulgare. See *Holcus sorghum.*
Soy bean, *Soja max*, 38990.
Spathodea campanulata, 39222.
Spondias sp., 38943.
Ssŭ chi hai t'ang, *Saxifraga* sp., 38855.
Stachys sericea, 39101.
Stephania rotunda, 39084.
Sterculia acerifolia. See *Brachychiton acerifolium.*
carthaginensis, 39221.
lurida. See *Brachychiton luridum.*
Stevensonia grandifolia. See *Phoenicophorium borsigianum.*
Stizolobium sp., 38863.
Stringy bark, *Eucalyptus obliqua*, 38720.
peppermint, *Eucalyptus piperita*, 38721.
Victoria, *Eucalyptus macrorhyncha*, 38719.
yellow, *Eucalyptus muelleriana*, 38730.
Styrax hookeri, 39137.
Suan t'ao, *Prunus tomentosa*, 38856.
ying t'ao, *Prunus tomentosa*, 38856.
Sugar cane, *Saccharum* spp.:
(Australia), 39165.
(Brazil), 38893–38907.
Cayana, 38893–38906.
(Cuba), 39262.
Manteiga, 38907.
Quacsofoca, 39165.
Sycamore, *Brachychiton luridum*, 38980.
Symplocos theaefolia, 39138.
Syncarpia glomulifera, 38731.
laurifolia. See *Syncarpia glomulifera.*
Syringa sp., 38829.
amurensis, 38828.
villosa, 38830.

Ta pai ts'ai, *Brassica pekinensis*, 38782.
Ta yuan tsao, *Ziziphus jujuba*, 39194.
Talauma hodgsoni, 39139.
T'ang li, *Pyrus* sp., 38799.
Tangerine, *Citrus nobilis deliciosa*, 38941, 38942.
Taro, *Colocasia esculenta*, 38756, 38847–38849.
Aweoweo, 38847.
(Hawaii), 38756, 38847–38849.
Kai koi o Ewa, 38756.
Keokeo, 38848.
Ulaula, 38849.
Tephrosia candida. See *Cracca candida.*
Terminalia tomentosa, 38740.
Thalictrum foliolosum, 39085.
Thuja orientalis, 38797, 38798, 38831.
Thunbergia sp., 39302.
T'ieh hung tan lo po, *Raphanus sativus*, 38784.
Tilia mongolica, 38810.
Tobacco, *Nicotiana tabacum*, 39163, 39303.
Toluifera pereirae, 38977.
Tonka bean, *Coumarouna odorata*, 39142.
Tooart tree, *Eucalyptus gomphocephala*, 38717.
Toona sinensis, 38805.
Trachycarpus martiana, 38739, 39140.
Trachydium obtusiusculum, 39086.
Trebol de olor, *Melilotus parviflora*, 38864, 38865.
Trichosanthes kirilowii, 38842.
Trifolium subterraneum, 38983.
Triticum aestivum, 38687, 38889, 39152, 39193.
dicoccum, 39227.
vulgare. See *Triticum aestivum.*
Tsa jih pên yü mi, *Zea mays*, 38792.
Tsao, *Ziziphus jujuba*, 39194.
Tsao chio, *Gleditsia sinensis*, 38800.
Tung ch'ing chih, *Ligustrum quihoui*, 38807.
Tung tree, *Aleurites fordii*, 38671.
Turnip-rooted Chinese cabbage, 38783.
Turpentine tree, *Syncarpia glomulifera*, 38731.
Tzu yü mi, *Zea mays*, 38791.

Ulaula taro, *Colocasia* sp., 38849.
Undetermined, 38741, 39087–39092, 39097–39100.

Vaccinium glauco-album, 39141.
Ventilago sp., 39095.
Viburnum sp., 38813.
Vigna sinensis, 39143, 39299, 39306.
Vitis caribaea. See *Vitis tiliaefolia*.
    tiliaefolia, 38853.
Voandzeia subterranea, 38985.

Wampi, *Claucena lansium*, 38708, 39176.
Wheat, *Triticum* spp.:
    Candeal, 39152.
    (England), 39193.
    Kathiawar, wild, 39227.
    (Mexico), 38889.
    (Philippine Islands), 39152.
    Rivett's Red, 39193.
    (Russia), 38687.
    Spanish Zarraceno, 39152.
    Turkestan, 38889.
    wild Kathiawar, 39227.
Willow, *Salix* spp.
Wirilda, *Acacia retinodes*, 38758.
Wistaria tree, *Bolusanthus speciosus*, 39300.
Wu yüeh hsien yü mi, *Zea mays*, 38789.

Yarey, *Copernicia glabrescens*, 39219, 39289.
Yeh chi hung shui lo po, *Raphanus sativus*, 38785.
Yerba maté, *Ilex paraguariensis*, 38858.
Yuraguana, *Coccothrinax miraguama*, 39203.

Zanthoxylum alatum, 38825.
Zea mays, 38690, 38691, 38789–38792, 39158–39162, 39228–39260.
Ziziphus jujuba, 39194.
    sativa. See *Ziziphus jujuba*.